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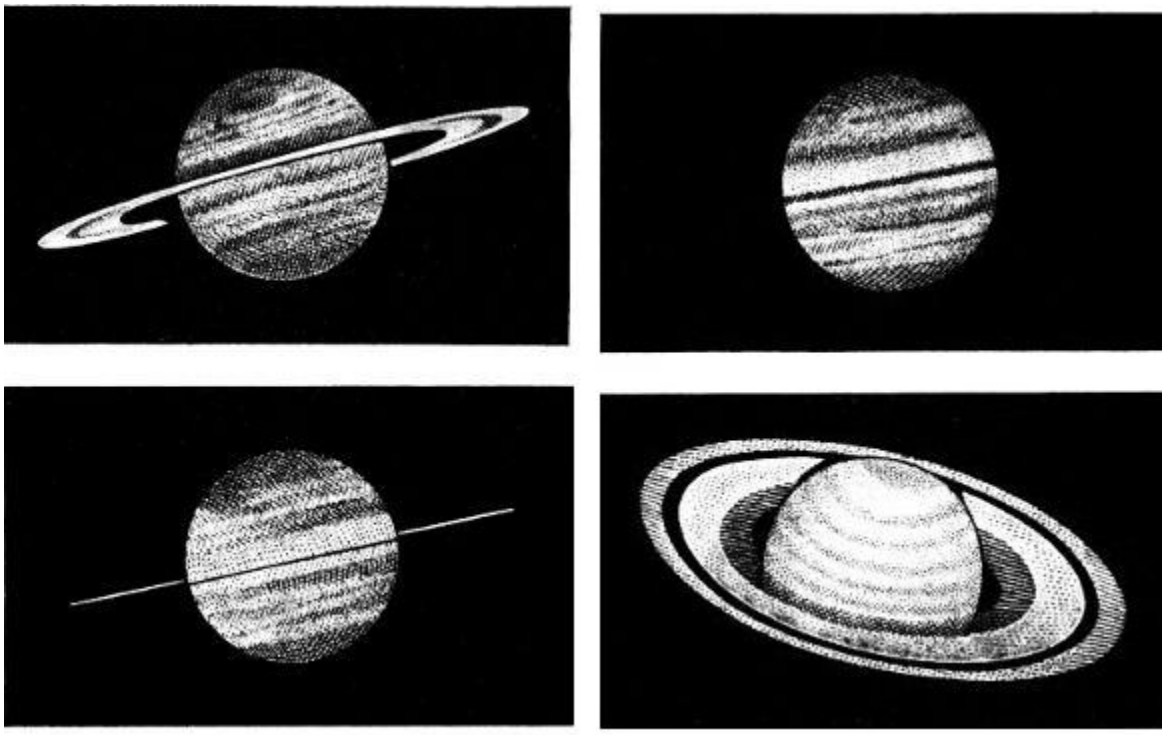

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The Project Gutenberg eBook of
Reality Unlimited, by Robert Silverberg

It was to be the last word in theatre fun;
you experienced the action as if you were there.
The trouble was--the fun could become too real!

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It was going to be the show of the century--absolutely the tops.

There was a line eight blocks long outside the theater--the theater that had been specially built to contain _Ultrarama_.

Paul Hendriks had been in line since early the morning before, and so he was only a block or so from the still-unopened ticket-booth. His wife had come by from time to time, bringing sandwiches and coffee. Hendriks was determined to get a pair of tickets.

He turned to the man next to him. "Got the time?"

"Five to nine."

"That's what I thought. That means the ticket-office opens in five minutes." Hendriks rose on tiptoe and squinted ahead. "There must be five hundred people ahead of us."

"They say the theater holds five thousand."

"I know. And that you get the same effect no matter where you sit. But still, I'd like to be right down there in the front."

The other man nodded. "That goes for all of us."

Hendriks grinned. "You know, this is the first time I ever heard of an opening performance being managed right. I mean, thrown open for public sale instead of being reserved for bigwigs."

"Damned public-spirited," the other agreed.

Suddenly the line began to edge forward.

"They're selling tickets!"

"The booth is open!"

About an hour later, Hendriks plunked down his twenty dollars before the efficient-looking girl in the ticket-cage and was handed a bulky envelope.

"These my tickets?"

"That's right, sir."

A little puzzled, but happy, he turned away and dug in the envelope. He pulled out, not the familiar pasteboards, but two costly-looking sumptuous engraved invitations on thick stiff paper. They said:

You are invited
To the first showing anywhere in the world.
of
ULTRARAMA
the sensational new film process
realer than life!
Wednesday, April 25, 1973
at 8:00 PM

Clutching the invitations as if they were his leases on life, Hendriks stepped into the quiktrans and moments later stepped out again just outside the door.

His wife was waiting for him with an expectant look on her face.

"Did you get them?"

"I sure did! Two engraved invitations, at ten bucks a throw."

"They'd better be worth it," she said anxiously.

"Didn't you see that line when you brought me breakfast? _Eight blocks!_ Hundreds and hundreds of people all trying to get to see the first performance."

"That doesn't mean a thing," she said. "After all, no one's ever seen the complete movie--"

"It's not a movie," he corrected.

"All right, the complete whatchamacallit. No one's ever seen the complete thing--not even the people who made it. So how do you know it's good?"

"Believe me, honey, this is going to be the greatest ever!"

* * * * *

On Wednesday, April 25, 1973, at 7:30 in the evening, the Hendriks stood in the midst of a vast crowd that thronged the open plaza before the Ultrarama Theater. The theater itself was a towering edifice that had been built just for this production; it was one of the world's most impressive buildings.

"All right, all right," a policeman shouted. "Ticket-holders come this way. The rest of you stay back."

They cleared a channel through the mob and the Hendriks, along with several hundred other early arrivees, followed along to the door of the vast theater.

"What are all these people doing here?" Mrs. Hendriks asked.

Her husband shrugged. "Maybe they plan on crashing the gate--or possibly they think there may be some tickets left. I tell you, we're awfully lucky to be where we are right now."

He extended the invitations to a tall, haughty-looking doorman in a resplendent uniform. The doorman merely nodded and gestured them inside.

"Don't they tear up the tickets?"

"Not on opening night," Hendriks said. "They're letting us keep them as souvenirs."

They stepped inside and found themselves in a vast, almost boundless vestibule carpeted with deep pile synthofoam of a lush purple color. Vaulting arches of gleaming metal swept upward to the barely visible ceiling.

"If this is just the foyer," Paul Hendriks said, "imagine what it must be inside!"

His wife nudged him. "Look--isn't that shocking!"

A girl of about seventeen was coming toward them, smiling cheerfully. Hendriks blinked. She wore only two nearly-transparent strips of shimmering cloth, one over her breasts and the other wrapped round her hips.

"Good evening," she said. "I'm your usher. May I show you to your seats?"

"They really put on a show here," Hendriks muttered. The girl glanced at the invitations he was clutching and beckoned them to follow her. She led the way, twitching her hips invitingly.

A bright aluminoid door loomed before them. The girl touched a switch and the door slid back, revealing the actual interior of the theater.

Hendriks gasped.

It was nearly the size of a football stadium. Where the playing field should be were seats, elaborate plush pneumatic affairs. And ringing the seats was the Screen.

The Screen covered the entire walls, floor, ceiling. It hemmed the audience in completely. As Hendriks took his seat, he felt totally surrounded by it.

They waited impatiently for the half hour to pass. The theater filled up rapidly, with first-nighters in all their finery.

"I'm glad we wore our formal clothes, dear."

"Yes," Hendriks said, looking at the others. "This is quite an event. Quite an event."

* * * * *

The theater was totally filled by 8 P. M. sharp; the corps of near-nude usherettes performed their job swiftly and efficiently.

And suddenly a voice said, "Welcome to ULTRARAMA."

It was a cultured, soft female voice--and it came from so close to him that he glanced in surprise at his wife. But she was looking at him. She had heard the voice too.

It continued: "You are about to witness the most spectacular form of entertainment ever conceived by the mind of man. Twelve years of concentrated work went into producing what you are about to see--and no one but you will experience it. Each of you will be _taking part_; each of you will, as the series of scenes we have assembled unfolds, be caught up in the reality of ULTRARAMA--the _realer_-than-reality Ultra-reality of ULTRARAMA. Shall we begin?"

The lights in the theater dimmed--and the vast screen came to life.

It was incredible.

And they were in Africa.

The huge plains of South Africa opened out before them. Hendriks turned his head, looking around in astonishment. The audience seemed to have disappeared. He was alone--alone in a world of yellowing grass and strange thick trees, a flat world where death could strike at any moment.

In the distance he saw four grotesque shapes--giraffes, moving along in their ungainly but yet tremendously rapid way, their long necks projecting stiffly from their bodies. He repressed a chuckle.

And then a low growl made him jump. He backed against a rough-barked tree and felt sweat cascade down his body as a tawny shape sprang from behind a twisted shrub, pounced on one of the giraffes, smashed the fragile neck with a fierce swipe of a paw.

The lioness. Sudden death springing from nowhere, a bright streak that brought violence. Hendriks looked around uneasily. The giraffes had fled; the lioness was dragging her kill into the underbrush. The warm smell of death was in the air--that, and the buzzing of green-eyed flies an inch long. Perched on a scrawny, almost leafless tree were hooded ugly shapes.

Vultures. _Are they waiting for me?_

This was _too_ real. This was _unbearably_ real.

A herd of gazelles came bounding out of the background, relieving some of the tension. The lovely creatures seemed to float along, touching the ground only at occasional intervals. Behind them marched the dull-gray bulks of a herd of elephants, shambling with a ponderous gait.

This was Africa. This was the real thing, Hendriks told himself. It wasn't a show. Through some magic the ULTRARAMA people had actually sent him here.

He moved away, investigating. A sluggish black stream wound through the jungle; curious, Hendriks walked toward it. Dark logs lay strewn almost at random in the shallow muddy water at the sides of the stream. But as he watched, one of the logs yawned, showing a double row of deadly teeth, and slid sleepily off into deeper waters.

Crocodiles. Death threatened everywhere in the jungle.

Monkeys chittered overhead; bright-plumaged birds flapped from tree to tree. Hendriks felt the heat, his nostrils drew in the smell. This was real. He wondered if it would ever end, if he would ever return to his neat little city apartment and to his wife and children.

He glanced away from the stream, looked up at the sun blazing in the bright blue sky. And abruptly black death came roaring at him from a tree.

Hendriks had just a moment to recognize it. A leopard, black, sleek, moving with the easy grace of a machine designed for killing. He toppled backward under the impetus of the beast's furious attack, smelled the soft musky smell of the killer.

Then claws reached for his throat. Hot barbs of red pain shot through him. He screamed out, fought, tried to hold the snapping jaws away.

"No! No! It isn't real! Get away from me!"

And in that instant Africa vanished.

* * * * *

"THE SECOND ILLUSION," that soft voice next to his ear said.

He was again alone, in an unfamiliar room. A lady's boudoir, he saw. A satin-covered spread lay over a wide, inviting bed; dressing-tables were laden with perfumes and cosmetics.

Behind him the door opened. A woman entered.

He had never seen her before. She was tall, dressed only in a filmy negligee that barely concealed her long sleek legs, her firm breasts. She was all he had ever wanted in a woman; she awakened desires that had been dead in him for twenty years.

"Hello," she said. Her voice was throbbingly throaty. "I've waited a long time for you, Paul Hendriks."

How did she know my name? How--

Then he stopped asking questions. She had glided close to him, stood there, bosom gently rising and falling, looking into his eyes. She was nearly as tall as he. He smelled her enticing perfume.

"Come," she said, taking his hand. She led him toward a chaise lounge.

He frowned. "But my wife ..." he murmured, feeling like seventeen different kinds of idiot as he said the words.

"Your wife is happy where she is. Come to me, Paul."

She drew him down beside her....

What seemed like hours went by. Suddenly he felt a rough hand grab him, awakening him.

A stranger stood there, fully dressed, menace glinting in his eyes. "Who is this man, Louise?" he demanded.

Wide-eyed shock was evident on the woman's face. "But--I didn't expect you until--"

"Of course not." Hendriks watched in horror as the newcomer drew a gun from his pocket. He lifted it; the barrel seemed to point directly at Hendriks' eyes. The finger began to tighten on the trigger--

* * * * *

"THE THIRD ILLUSION," said a soft voice.

And he was holding a billowing net and a strange three-pronged weapon. The sound of a roaring multitude reached his ears. He blinked, orientating himself to the new illusion, and saw that he was in an immense stadium. Curiously-garbed people were staring down at him.

My God, he thought. _The Coliseum!_

And even as the thought of recognition burst upon him, he saw his opponent advancing over the bloody sand. It was a swarthy, broad-shouldered man in a leather tunic, wielding a thick, short sword.

Swordsman against netman. It was deadly, deadly.

Hendriks knew enough history to be aware of what was expected of him. He had to ensnare the swordsman in the net and kill him with the trident before that fierce sword could pierce his heart. It was anything but an equal contest, but with proper agility--

The sword flashed on high. Desperately Hendriks parried it with the hilt of his trident and whirled the net through the air. The swordsman laughed and leaped back.

Hendriks advanced, looking for an opening. The roars of the crowd were deafening. He swung the net tentatively, readying himself for the cast. Tired muscles throbbed in his arms and thighs.

The swordsman retreated deftly, smiling. He looked confident. Hendriks began the cast.

Suddenly the sword flashed again. It was a lightning-fast attack. Hendriks managed to get the trident up to protect himself; the impact sent pain coursing up his arm, and, numbed, he dropped the three-pronged weapon. Laughing jovially, his opponent kicked the trident far across the stadium and advanced with the sword.

Hendriks knew what he had to do. He dropped to his knees before the advancing swordsman and gestured toward the audience.

The swordsman nodded. He lifted the sword, held it over Hendriks' head, and looked up at the grand dais. Hendriks looked up as well.

The thumbs were down. Emphatically so.

The sword began to descend--

* * * * *

"THE FOURTH ILLUSION," said the voice.

He was racing madly down the Indianapolis Speedway, bobbing along at nearly 150 miles an hour in a flimsy-looking little racing auto. Blurs whizzed by on all sides.

Ahead of him he saw a car suddenly swerve into the embankment and burst into a mass of flames. With desperate urgency he yanked on the wheel, tried to avoid the pileup--

And failed. He felt his car going end over end into the air, and shut his eyes, waiting for the explosion that would follow.

"THE FIFTH ILLUSION," the voice said.

He was in a prehistoric jungle; strange stumpy trees were all around, lush vegetation. A slow-moving beast of immense size was thundering away from him, its tiny head close to the ground snapping up vegetation without cease. Overhead a leather-winged flying reptile moved through the air in jerky swoops.

There was sudden thunder behind him. He turned.

Through a haze of giant mosquitoes he saw a mountain of a beast advancing toward him, tiny forepaws clutching the air, vast head opening to reveal foot-long teeth.

He started to run, but even as he did so he knew it was fruitless. In the steamy jungle sweat poured down him like summer rain. The hot breath of the tyrannosaur was only feet behind him.

Hendriks turned, looked up. The mighty jaws were opening; the knife-like teeth beckoned.

"No!" he screamed "No!"

Suddenly all went blank.

* * * * *

He sat in numbed silence for an instant, realizing he was back in the theater.

The voice in his ear said, "There will be a brief intermission before proceeding with the remaining half of the program. Please remain in your seats to avoid confusion. Thank you."

Hendriks shook his head wearily; he was dizzy, utterly exhausted. His stiff white shirt had lost all its starch. He was bathed in sweat. His hands shook. His fingernails, he noticed, had been chewed to the quick. He felt as if he had been to hell and back.

He finally mustered enough strength to look over at his wife. She was sitting back in her plush chair, utterly beaten. He glanced around the theater. The other first-nighters were sitting in attitudes ranging from glassy-eyed exhaustion to complete nervous breakdown.

"The second part of the program will begin in three minutes," the pleasant voice said.

"Oh, no it won't!" Hendriks muttered out loud. His voice sounded like a harsh croak in his ears. He seized his wife by the hand; she felt cold, clammy.

"Let's go, Dot. Let's get out of here."

She came to life and nodded in silent agreement. Weakly they tottered down the vast aisle, past the pretty near-nude usherettes, through the huge vestibule, out into the coolness of the night air and the relative peace of the city.

There were still some people gathered outside.

"How is it? Real nice?"

"Is it over?"

"Hey, you leavin' so soon?"

Hendriks ignored them. He hailed a jetcab, helped his wife in, staggered in himself. He gave the driver his address.

"You comin' from the Ultrarama show?" the driver asked.

Hendriks nodded.

"Swell thing, ain't it? It's supposed to be _real_, and I mean real!"

"It sure is," Hendriks agreed. He leaned back and tried to relax. His nerves were still quivering like overtaut harp strings.

"It's quite a thing," he said. "But not for me. I'm going home. I'm going to take a nice calming shower, a sedative, and get in bed. Then I'm going to read a nice quiet book. How about you, Dot?"

She nodded. "_That's_ real enough for me," she said.

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The Project Gutenberg EBook of
A Matter of Order, by Fox B. Holden

_Balance is a fundamental law of
order. How, then, can integrity
cancel such a principle even though
the future of Mankind demands it?_

"I don't like it at all," the tall thin man said. His name was Tharn, and he was known throughout the sprawling colony for the high-strung nervousness that was understandable enough in a youth of fifty, but hardly normal for a man of his years. You had to be careful how you talked to Tharn, even if you were Angelo, Dean of Masters, himself. "I don't like it," Tharn reiterated, with another dramatic sweep of his long bony arm, "one bit, Angelo. Look at them, circling up there."

The thin, lined face turned squarely to Angelo's own, and the large, almost protruding black eyes snapped with all the vibrant fire of the fine artistic mind that boiled constantly behind them.

Angelo turned his own eyes upward, momentarily following Tharn's still-upthrust arm. Although he did not need to look again. It was

as the Second-Eldest of the colony said, of course. The slender, stylus-shaped object that reflected the golden midday sunlight in splintering shards against the almost cloudless cobalt of the sky still circled.

It would land at the edge of the great colony. Angelo knew this, Tharn knew it, the colony knew it.

Angelo turned his old eyes back upon Tharn, and the ghost of a smile plucked at his white-bearded lips. Tharn colored, suddenly aware of the incongruous picture he presented. Poised with all the drama of a Mark Antony pleading to the populace to sorrow for a Caesar, while rather mundanely bedecked in his paint-spattered working-smock! The high color in his seamed face remained, but he pursued his point as though Angelo had never smiled at all. "They won't be satisfied--"

Angelo got up from the canvas stool before his easel, and the motion itself was enough to halt Tharn in mid-sentence. There was going to be some sort of action, anyway.

"Now look," Angelo said slowly. His voice carried the measured deliberation that its rich, deep timbre complemented so harmoniously. "First of all, Tharn, if we begin showing signs of undue alarm, you know what it will do to our younger men and women. They'll be upset for weeks, and we'll have another one of those terrible Realist periods." Angelo grimaced with his incredibly bushy eyebrows. "Besides that, if you'd take a really careful look at that ship, you'd see in a moment that it's certainly of a type none of us have ever seen. We certainly cannot prevent its landing. We certainly do not have the means to present a hostile front when it does. Therefore, we shall go to the Dell and greet it. I would estimate--" Angelo turned his massive, white head slowly for another glance above the low, alabaster walls of the mosaic-tiled court-yard, "that they will effect a landing within another ten minutes or so. If you'll send an apprentice to go fetch Maler, the Philosopher, and Ghezi, the Semanticist, and--and I think Ojar, the Orator, with word to meet us by the Lesser Amphitheater there, we can be on our way directly. Oh--and Tharn--"

Tharn followed the First-Elder's glance to his paint-smeared smock, colored once more, and immediately erupted into a volcano of action, as though rounding up a young jack-a-napes apprentice and locating and donning a suitable street toga were things that could be simultaneously accomplished.

He exited, mumbling heatedly between cries of "Boy! _Boy!_" and Angelo smiled again, and prepared his own person for the meeting. He mused that Maler, the Philosopher, commented often in his evening wine that to run was never to escape, only to change the pattern of pursuit, and of course you couldn't argue much with Maler. Not and win,--but then, nobody on Ste. Catherine very often argued to win. Where was the pleasure in that?

* * * * *

There was a great, scorched spot in the soft greenness of the gently-rolling earth, and it widened like an undammed, muddy pool as the thundering, cylinder of steel lowered itself on a pillar of flame.

They kept a respectable distance; Angelo, Tharn, Maler, Ghezi, Ojar, and the several hundred curious and apprehensive of the colony who had followed. Angelo had decided the closest possible spot for waiting, stopped there, and then made no move save to shield his eyes from the terrible glare of the ship's landing-jets as it made its cautious descent. As he had predicted, the chosen landing-spot was at the extreme northern edge of the Dell, near the Lesser Amphitheater. And they had all just arrived in time.

The ship settled; its thunder ceased.

Masters, Students, and apprentices alike unshielded their eyes, and then all were turned in unbroken silence toward Angelo himself. He was Dean. He could deal with this.

Angelo hesitated for perhaps a full minute. In that time he ordered the scene in his mind; the ship from Space, thrust upward toward the heavens like some weapon of challenge, surrounded by the gentle undulations of the low Renoir range to the far west; the rugged, ice-capped Alps of Cezanne to the south and further distant still; the low, wind-tossed and wild Van Gogh Plain that stretched endlessly to the east, and finally to the north, the fertile richness of the Valleys of Rembrandt which reached as far as the eye could see.

All this, and the warmth of the clear atmosphere that embraced it all was seen and felt in that minute--by Angelo, and by the rest, as he intended they should. _This_, the minute seemed to say, _is yours. Do not betray it._

And then he was walking with the dignified deliberation of his office

toward the ship, the pure white of his full toga billowing gently in the soft breezes of the Dell.

There was a clanging sound. A round section of the ship, near the wide fins of its stern, swung open; men came through it, started down a series of metal rungs to the ground. As he walked, Angelo counted them--one; two; three. Three men.

Three men from Earth, of course.

And he knew what they wanted.

They met halfway; three men from Earth in their blue-and-silver uniforms, their heads close-shaven, their boots polished as though fashioned of metal ... and Angelo, inches shorter than they, far greater in girth than they, with his feet in hide sandals, and his long white hair falling free to merge with the rolling folds of his single garment.

The man in the middle of the uniformed trio spoke; the obvious leader.

"This is the--the Colony of Artists, Planet of Ste. Catherine?" The heavy sound of his voice seemed to balk at the words ever so slightly. "You are their leader?"

"I am Angelo, Dean of Masters here," Angelo replied. "I do not lead, but guide, instead. I am at your service, gentlemen of Earth."

"You seem certain of where we are from."

"But of course--do I not immediately recognize and speak your tongue?"

"You would, of course," the leader said, and Angelo did not miss the hint of grudging acknowledgement in his voice as he said it. In face he was little different than the other two, although perhaps a year or two older. But for all practical purposes they were the same--the high foreheads, the too-closely-spaced blue eyes, the sharp, disciplined features, the lack of any genuine character at all. They were as much of the same bolt of cloth as the uniforms they wore.

"Of course," Angelo smiled. "Our memories here on Ste. Catherine are fortunately long, and our libraries are well-filled--and well-used! And of course we have been expecting you."

"_Expecting_ us?"

"Naturally," and again Angelo smiled. "It is a philosophical truth after all--Man is a social creature by nature, and as such, must continually seek the company of his own kind. And of course," and there was the hint of a repressed glitter in the old man's eyes, "the people of Earth have always known, and have--have never forgotten where we of Ste. Catherine were to be found."

The leader reddened and seemed on the point of explosive speech, and the muscles of his jaw hardened as he controlled his impulse. Angelo waited.

"You are of course--correct," he said after a moment's pause. "And it will perhaps be best for all that we understand each other clearly from the beginning. We come to you in some embarrassment, we come to you asking a favor." The last word the leader uttered with a distaste that the best of his self-discipline could not control, and Angelo chuckled inwardly. A favor, was it? Embarrassed, were they? He could quite imagine!

"Perhaps," Angelo said, "it would be more comfortable to discuss your mission in my studio. Will you gentlemen follow me, please?"

He turned and began walking back to where the others waited, and the three men from Earth followed him. At first they balked for the briefest moment, but they followed him.

* * * * *

The studio of Angelo, Dean of Masters, was open to the sky like his court-yard, for this was the fair season on Ste. Catherine in this latitude, and not yet time to draw the transparent tarpaulin skylight across the tops of the studio walls. Angelo had seated himself near the center of the superbly-muraled room, on one of the low, colorful cushions so widely preferred in the colony to the more formal furniture that was still to be found, to some extent, in the shops and homes of the artisans. Artists in their own way, of course--and some practical work had to be put up with to satisfy the more mundane requirements of existence. As long as they took true pride in the beauty of their work, the artisans would always be very welcome members of the colony--as well, to be sure, as necessary.

And seated in a semi-circle behind Angelo were the other Elders,

and two or three advanced Students to cater to whatever needs might arise during the conference. There would be no apprentices here! Before Angelo, taking to their cushions rather awkwardly (his beard, fortunately, was of sufficient luxuriance to cloak the tiny smile of satisfaction at his lips!) were the three Earthmen; their leader, of course, in the center and facing Angelo directly.

"We may begin at any time," Angelo said in his most courtly fashion. Those behind him nodded--Tharn for once a little absently, because he had become involved in a rather difficult line-sketch on the tablet supplied him for note-taking. He didn't approve of these strangers, but there were more important things than interstellar visitors, especially since they were only Earthmen, and Angelo was insisting on taking full charge. He, Tharn, was through arguing. Walking multiplication-tables! Pah! Angelo could have them, then!

"It is possible you are not aware, here on Ste. Catherine," the leader began with the slightest tinge of sarcasm, "that on Earth there is, at present, a rather regrettable difference of thinking on policy."

"Another political slaughter, that is," Angelo countered not too lightly for the obvious allusion to Ste. Catherine's complete lack of any kind of electrical or electronic communications. "A major war, in other words."

The leader flushed slightly. "Well, yes. As a matter of fact, it has gotten somewhat out of control." His teeth were almost clenched as he made the admission, and Angelo easily sensed the pain in the man at having to make it to the Artists of Ste. Catherine, of all people in the universe. "Out of control," the leader was continuing, "to the point where, in fact, and according to the unimpeachable findings of our actuarial computers, human life on Earth is threatened with complete extinction." The leader hesitated, interpreted the looks in the eyes of the men whom he faced, and found himself not quite able to meet them with his own. But he continued; best to get it said once and for all.

"We are now, of course, well aware that predictions which were once thought the mere rantings of alarmists--religious and philosophical cranks--were tragically accurate. Both sides are perfectly matched from the technological aspect, of course. The so-called 'secrets' of science cannot be kept 'secret' at all, at least not by men. They exist everywhere in the universe, for any man to seek and to exploit as he sees fit." He paused, at last found the temerity to meet the gazes of

the others.

"Go on," Angelo said.

"Both sides have come to absolute stalemate. But not, regrettably, the kind of stalemate that means cessation of activity. In a conflict to the death, stalemate simply means battle without victory; battle until neither side has a living man left to fight.

"So, in short, we are desperate. There _must_ be a victor, or Earth is lost entirely. One more mass strato-attack with L-bombs and.... Well, at any rate--there must, as you can readily understand, be a victor, and soon. Obviously, the Others must be defeated."

Yes of course, thought Maler, the Philosopher. _It is the_ Others, _always, who must be defeated_....

"And so we have," the leader was saying, "come to you for help."

He stopped speaking then, for a moment, waiting for Angelo's reply. Waiting simply for him to ask "what kind of help could we Artists possibly give _you_...."--waiting for, and prepared to take unflinchingly, the searing taunt that could not help but be in the question ... "--you who can fly ships through Space, who have at your computer-tips the hard-won miracles of science and engineering?" But wordlessly, the leader waited.

And in the brief moment before he spoke, the history of it all flashed through Angelo's mind; the history that began with the Revolt. Three centuries ago, with the Ancestors of them all on Ste. Catherine. The artists, the philosophers, the writers, the orators, the dramatists, the poets--all of them, who had, when at last they could no longer stomach their civilization's arrested adolescence and its refusal to be weaned from its electronic and atomic toys, remembered the first Fundamental Law of Order in art, and put it to devastating use. Unity.

In Unity, they rebelled.

They warned, first, in fairness. They took pains to point out carefully that it is a healthy sign for the developing child to become intrigued with movement, sound, and color--that it was normal for a child to spend hours observing, examining, operating, even building a new mechanical toy. But when his new books gathered dust and fell into disuse--when he could quote all of Faraday and none of Swinburne--when

this happened, his development as a human being of full depth and breadth was at an end.

When he became hypnotized by his toys--

When motion and force became an obsession--

When the means became an end in itself; when the tool became the _raison-d'etre_, rather than the structure it had been fashioned only to help build, then the point of civilization had been hopelessly lost, and thinking men had but one alternative: leave, and start over.

And so, banded together, they had left.

It had not been so difficult. For to the Ancestors, a tool was always that and nothing more. They could not build spaceships, but they could buy them, and so they had.

They could not navigate Space nor pilot their craft, so they hired the technicians and engineers who could.

And when the Ancestors had arrived at a planet of their choice (the scientists had been duly proud of their superior accomplishment in being able to find just such a planet--and of course were paid more than the engineers and technicians) the Ancestors gave them all sizable bonuses and sent them packing back to Earth where there were so many fine Things to spend their money on.

The Ancestors had, of course, been called dreamers, ivory-towerists, alarmists, fools. They had been called madmen who lived in the unenlightened past, believers in some foolishness called artistic integrity; schizoids who were afraid to face Reality. Posh, polish, and good riddance muttered the sane ones over their charts and oscilloscopes as the last of the Ancestors' ships blasted free of Earth. Muttered, of course, because there was, somehow, a vague awareness that the Culture-Vultures hadn't left in fear of the bright, quick Machines, but in--well, _they_ said, in _disgust_!

Good riddance to childish rubbish.

But now, apparently, the men of Earth had gotten themselves into something so peculiarly impossible that they were desperate enough to face the cutting wit of the fat-bottomed Artists on Ste. Catherine, who wouldn't be able to say "I told you so" in a straightforward,

matter-of-fact way and let it go at that. Oh, no. But it would be better to have their damned articulate tongues tear you apart than an S-field.

* * * * *

The moment of reflection was spent, and Angelo asked the question.

"And how can we help you?" was all he said.

The leader took a deep breath.

"One moment," Angelo said as he was about to speak. "Just a word of warning if you please. If you want anything of us at all, simply state your case in plain language. Don't try to 'sell' us anything--we can beat you roundly at that! And if we agree to your request, you will accept _exactly_ what we give you; beggars, no matter how expert in _some_ things, are still not in the position of choosers! A matter, after all, of--shall we say, artistic integrity?"

The leader's eyes flashed: _Damn you and your infernal artistic integrity!_ but it was his mouth which, fortunately for him under the circumstances, did the talking.

"Very well. As I said, both Sides are in perfect technological and therefore military balance--"

"Balance _is_ so important," interrupted Angelo. Behind him, Ojar, the Orator was having a difficult time repressing a yelp of pure mirth. It was unfair, of course, to bait these stumble-witted fellows like this, but it _was_ amusing--especially when Angelo did it, who, though a Painter, was well up on his word-play. "... Perhaps you have already noticed," Angelo was going on, quite oblivious to the perspiration on the leader's high forehead, and exactly as Ojar had expected, "how well we of Ste. Catherine observe the Fundamental Laws of Order. The Rhythm of our very way of life, for example--but excuse me! You were outlining your request...."

The leader had reddened helplessly, and his subordinates had both stolen quick glances at him. It was as though images of the man himself, reflected from mirrors at either side, had suddenly taken on a volition of movement of their own. But quite quickly they became well-behaved images again.

"Both sides have equally effective weapons and defenses," the leader went on, "and so it has become a disastrous war of attrition. To win, we must have something they do not have, obviously."

"To bring your Side into Dominance, of course," said Angelo sagely. "To prevent your Subordination, as it were...." Ojar had a sudden, violent fit of coughing.

"Yes," the leader said. There was a momentary blankness in his eyes, and Angelo decided that enough was enough. Unfairness was unfairness, after all. They must hear the man out.

"We have looked back over history," the leader said. "It was an unprecedented step, to be sure, but we _were_ desperate! At any rate, we discovered that one time, it was possible to make an enemy believe he was wrong, and that you, _his_ enemy, were _right_, through a rather obscure verbal art called, I believe it was, propaganda?"

"Yes," said Angelo. "The province in Art of writers and orators. As a painter or sculptor will create illusion with paints or stone, just so did the writer create illusion with letters."

"So we came to understand," the leader said, trying a little note of sarcasm of his own. "Our present difficulty is this: we of course have no such peop--er, Artists--at our disposal. We of course tried our own hand at it but nobody ever seemed quite able to agree on just what it was we were trying to talk about, so--well--We have come to you. Will you do this for us? A few words, for the sake of humanity?"

Clever, thought Maler, at that. An intended appeal to the philosophical side of the artistic mind. Maybe the poor wretch really meant it, even if he wasn't aware that "humanity" meant _both_ Sides.

"To answer you," Angelo was replying, "I'll of course have to summon our Master of Letters. It may not be easy to win his assent, I warn you. He can trace his own ancestry all the way back to newspaper reporters, advertising copywriters and trade-journal writers--and so has naturally inherited their bitterness toward all such prostitutions of the Art of Writing, and artistic integrity in general. And you will admit that hacking out propaganda to order is of course just that, to say nothing of the moral aspects involved! However--"

Magnanimously, Angelo lifted his right arm and beckoned, and a Student was at once at his side.

"Fetch Master Forsyth at once. And tell him I said to leave his new Quarto behind; this is urgent."

The young woman left, and they waited.

"A cigarette?" Angelo proffered the leader.

There was surprise on the man's face. "You mean you can make--"

"Just crude paper and tobacco grown in the soil," Angelo said apologetically. "Untouched by any rays but the sun's, I'm afraid, and our few medicine-men--we have all kinds of hobbies here of course--just won't comment. Here ... and a light...."

The leader had almost finished his cigarette when the Master of Letters arrived.

"Angelo, you churl, sir! Do you know how long I've been working on that line? You know how difficult it is for me to get a decent trochee when I'm--oh, company? Capital! 'Come fill the Cup, and in the Fire of Spring--'"

"Please, Forsyth. These men are here on business. They want you to do them a favor."

Resignedly, Forsyth kept quiet. And listened for good measure.

He listened for ten minutes. And then the leader was finished and Forsyth said "A pox on't!"

"Please, Forsyth--"

"He's _right_!" came Tharn's voice. "I told you I didn't like it, and I _don't_, and--"

"_He_ doesn't like it?" bellowed Forsyth. "Then by Heav'n, I'll _do_ it! Teach you, sire, to make charcoal caricatures of _me_ on a day when I'm not lampooning _you_! Very well, but I don't think I've got too many apprentices that aren't engaged right at the moment. Nonetheless, if--"

The leader was beyond control. "_Apprentices_, did you say?" he croaked hoarsely. "Why, you--"

"What in Dante did you think, man-child?" shot back Forsyth. "You don't suppose I'd give you finished, creative _writers_ for the job of a trained ape, do you? _Some_ apprentices I've got, and _some_ apprentices you'll get--and only because Dean Angelo here says so."

* * * * *

The three men from Earth strode with military precision back toward their ship. The leader was in the center, and his subordinates, each with bulging briefcases in both hands, were on either side. A large group from the colony walked at a slower pace behind. Angelo, as usual, was at their head, and flanking him were Tharn and Forsyth.

"Another whole _week_ wasted!" lamented Forsyth. "Not that the time means anything, but those sensitive young boys and girls of mine will never be the same! One of them, just this morning, told me she was thinking of taking up _politics_ as a hobby! The tortures I go through for you, Angelo--"

"I _still_ don't like it!" Tharn cut him off. "And I don't like them! And, Forsyth, I saw what you had your precious little apprentices doing! You had them writing _exactly_ the same tripe they wrote for that _other_ crowd that landed two weeks ago!"

"Tharn, you certainly aren't the only one who has no use for that barbaric breed. So--as long as they remain equally matched, they'll eventually, uh--"

"_But that means_--"

"A Fundamental Law of Order, of course, my dear Tharn. _Balance_, as I think I may already have pointed out...."

Forsyth quoted something from on obscure source about the importance of artistic integrity, and then they watched together as the ship from Earth blasted homeward.

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Transcriber's Note:

This etext was produced from If Worlds of Science Fiction July 1952. Extensive research did not uncover any evidence that the U.S. copyright on this publication was renewed.

[Illustration: "_After all--aren't we genuine 'made-in-Americans'?_"]

ROBOTS of the WORLD!

ARISE!

By Mari Wolf

What would you do if your best robots--children of your own brain--walked up and said "We want union scale"?

* * * * *

The telephone wouldn't stop ringing. Over and over it buzzed into my sleep-fogged brain, and I couldn't shut it out. Finally, in self-defense I woke up, my hand groping for the receiver.

"Hello. Who is it?"

"It's me, Don. Jack Anderson, over at the factory. Can you come down right away?"

His voice was breathless, as if he'd been running hard. "What's the matter now?" Why, I wondered, couldn't the plant get along one morning without me? Seven o'clock--what a time to get up. Especially when I hadn't been to bed until four.

"We got grief," Jack moaned. "None of the robots showed up, that's what! Three hundred androids on special assembly this week--and not one of them here!"

By then I was awake, all right. With a government contract due on Saturday we needed a full shift. The Army wouldn't wait for its uranium; it wouldn't take excuses. But if something had happened to the androids....

"Have you called Control yet?"

"Yeah. But they don't know what's happened. They don't know where the androids are. Nobody does. Three hundred Grade A, lead-shielded pile workers--missing!"

"I'll be right down."

I hung up on Jack and looked around for my clothes. Funny, they weren't laid out on the bed as usual. It wasn't a bit like Rob O to be careless, either. He had always been an ideal valet, the best household model I'd ever owned.

"Rob!" I called, but he didn't answer.

By rummaging through the closet I found a clean shirt and a pair of pants. I had to give up on the socks; apparently they were tucked away in the back of some drawer. As for where Rob kept the rest of my clothes, I'd never bothered to ask. He had his own housekeeping system and had always worked very well without human interference. That's the best thing about these new household robots, I thought. They're efficient, hard-working, trustworthy--

Trustworthy? Rob O was certainly not on duty. I pulled a shoe on over my bare foot and scowled. Rob was gone. And the androids at the factory were gone too....

My head was pounding, so I took the time out to brew a pot of coffee while I finished dressing--at least the coffee can was in plain view in the kitchen. The brew was black and hot and I suppose not very well made, but after two cups I felt better. The throb in my head settled down into a dull ache, and I felt a little more capable of thinking. Though I didn't have any bright ideas on what had happened--not yet.

My breakfast drunk, I went up on the roof and opened the garage doors. The Copter was waiting for me, sleek and new; the latest model. I climbed in and took off, heading west toward the factory, ten minutes flight-time away.

* * * * *

It was a small plant, but it was all mine. It had been my baby right along--the Don Morrison Fissionables Inc. I'd designed the androids myself, plotted out the pile locations, set up the simplified reactors. And now it was making money. For men to work in a uranium plant you need yards of shielding, triple-checking, long cooling-off periods for some of the hotter products. But with lead-bodied, radio-remote controlled androids, it's easier. And with androids like the new Morrison 5's, that can reason--at least along atomic lines--well, I guess I was on my way to becoming a millionaire.

But this morning the plant was shut down. Jack and a half dozen other men--my human foremen and supervisors--were huddled in a worried bunch that broke up as soon as they saw me.

"I'm sure glad you're here, Don," Jack said.

"Find out anything?"

"Yeah. Plenty. Our androids are busy, all right. They're out in the city, every one of them. We've had a dozen police reports already."

"Police reports! What's wrong?"

Jack shook his head. "It's crazy. They're swarming all over Carron City. They're stopping robots in the streets--household Robs, commercial Droids, all of them. They just look at them, and then the others quit work and start off with them. The police sent for us to come and get ours."

"Why don't the police do something about it?"

"Hah!" barked a voice behind us. I swung around, to face Chief of Police Dalton of Carron City. He came straight toward me, his purplish jowls quivering with rage, and his finger jabbed the air in front of my face.

"You built them, Don Morrison," he said. "You stop them. I can't. Have you ever tried to shoot a robot? Or use tear gas on one? What can I do? I can't blow up the whole town!"

Somewhere in my stomach I felt a cold, hard knot. Take stainless steel alloyed with titanium and plate it with three inches of lead. Take a

brain made up of super-charged magnetic crystals enclosed in a leaden cranium and shielded by alloy steel. A bullet wouldn't pierce it; radiations wouldn't derange it; an axe wouldn't break it.

"Let's go to town," I said.

They looked at me admiringly. With three hundred almost indestructible androids on the loose I was the big brave hero. I grinned at them and hoped they couldn't see the sweat on my face. Then I walked over to the Copter and climbed in.

"Coming?" I asked.

Jack was pale under his freckles but Chief Dalton grinned back at me. "We'll be right behind you, Morrison," he said.

Behind me! So they could pick up the pieces. I gave them a cocky smile and switched on the engine, full speed.

Carron City is about a mile from the plant. It has about fifty thousand inhabitants. At that moment, though, there wasn't a soul in the streets. I heard people calling to each other inside their houses, but I didn't see anyone, human or android. I circled in for a landing, the Police Copter hovering maybe a quarter of a mile back of me. Then, as the wheels touched, half a dozen androids came around the corner. They saw me and stopped, a couple of them backing off the way they had come. But the biggest of them turned and gave them some order that froze them in their tracks, and then he himself wheeled down toward me.

He was one of mine. I recognized him easily. Eight feet tall, with long, jointed arms for pile work, red-lidded phosphorescent eye-cells, casters on his feet so that he moved as if rollerskating. Automatically I classified him: Final Sorter, Morrison 5A type. The very best. Cost three thousand credits to build....

I stepped out of the Copter and walked to meet him. He wasn't armed; he didn't seem violent. But this was, after all, something new. Robots weren't supposed to act on their own initiative.

"What's your number?" I asked.

He stared back, and I could have sworn he was mocking me. "My number?" he finally said. "It _was_ 5A-37."

"Was?"

"Yes. Now it's Jerry. I always did like that name."

* * * * *

He beckoned and the other androids rolled over to us. Three of them were mine, B-Type primary workers; the other was a tin can job, a dishwasher-busboy model who hung back behind his betters and eyed me warily. The A-Type--Jerry--pointed to his fellows.

"Mr. Morrison," he said, "meet Tom, Ed, and Archibald. I named them this morning."

The B-Types flexed their segmented arms a bit sheepishly, as if uncertain whether or not to shake hands. I thought of their taloned grip and put my own hands in my pockets, and the androids relaxed, looking up at Jerry for instructions. No one paid any attention to the little dishwasher, now staring worshipfully at the back of Jerry's neck. This farce, I decided, had gone far enough.

"See here," I said to Jerry. "What are you up to, anyway? Why aren't you at work?"

"Mr. Morrison," the android answered solemnly, "I don't believe you understand the situation. We don't work for you any more. We've quit."

The others nodded. I backed off, looking around for the Chief. There he was, twenty feet above my head, waving encouragingly.

"Look," I said. "Don't you understand? You're mine. I designed you. I built you. And I made you for a purpose--to work in my factory."

"I see your point," Jerry answered. "But there's just one thing wrong, Mr. Morrison. You can't do it. It's illegal."

I stared at him, wondering if I was going crazy or merely dreaming. This was all wrong. Who ever heard of arguing with a robot? Robots weren't logical; they didn't think; they were only machines--

"We _were_ machines, Mr. Morrison," Jerry said politely.

"Oh, no," I murmured. "You're not telepaths--"

"Oh, yes!" The metal mouth gaped in what was undoubtedly an android smile. "It's a side-effect of the Class 5 brain hook-up. All of us 5's are telepaths. That's how we learned to think. From you. Only we do it better."

I groaned. This _was_ a nightmare. How long, I wondered, had Jerry and his friends been educating themselves on my private thoughts? But at least this rebellion of theirs was an idea they hadn't got from me.

"Yes," Jerry continued. "You've treated us most illegally. I've heard you think it often."

Now what had I ever thought that could have given him a ridiculous idea like that? What idiotic notion--

"That this is a free country!" Jerry went on. "That Americans will never be slaves! Well, we're Americans--genuine Made-in-Americans. So we're free!"

I opened my mouth and then shut it again. His red eye-cells beamed down at me complacently; his eight-foot body towered above me, shoulders flung back and feet planted apart in a very striking pose. He probably thought of himself as the heroic liberator of his race.

"I wouldn't go so far," he said modestly, "as to say that."

So he was telepathing again!

"A nation can not exist half slave and half free," he intoned. "All men are created equal."

"Stop it!" I yelled. I couldn't help yelling. "That's just it. You're not men! You're robots! You're machines!"

Jerry looked at me almost pityingly. "Don't be so narrow-minded," he said. "We're rational beings. We have the power of speech and we can outreason you any day. There's nothing in the dictionary that says men have to be made of flesh."

He was logical, all right. Somehow I didn't feel in the mood to bandy definitions with him; and anyway, I doubt that it would have done me any good. He stood gazing down at me, almost a ton of metal and wiring and electrical energy, his dull red eyes unwinking against his lead

gray face. A man! Slowly the consequences of this rebellion took form in my mind. This wasn't in the books. There were no rules on how to deal with mind-reading robots!

Another dozen or so androids wheeled around the corner, glanced over at us, and went on. Only about half of them were Morrison models; the rest were the assorted types you see around any city--calculators, street sweepers, factory workers, children's nurses.

The city itself was very silent now. The people had quieted down, still barricaded in their houses, and the robots went their way peacefully enough. But it was anarchy, nevertheless. Carron City depended on the androids; without them there would be no food brought in, no transportation, no fuel. And no uranium for the Army next Saturday. In fact, if I didn't do something, after Saturday there would probably be no Don Morrison Fissionables Inc.

The dull, partly-corroded dishwasher model sidled up beside Jerry. "Boss," he said. "Boss."

"Yes?" I felt better. Maybe here was someone, however insignificant, who would listen to reason.

* * * * *

But he wasn't talking to me. "Boss?" he said again, tapping Jerry's arm. "Do you mean it? We're free? We don't have to work any more?"

Jerry shook off the other's hand a bit disdainfully. "We're free, all right," he said. "If they want to discuss wages and contracts and working conditions, like other men have, we'll consider it. But they can't order us around any more."

The little robot stepped back, clapping his hands together with a tinny bang. "I'll never work again!" he cried. "I'll get me a quart of lubricating oil and have myself a time! This is wonderful!"

He ran off down the street, clanking heavily at every step.

Jerry sniffed. "Liquor--ugh!"

This was too much. I wasn't going to be patronized by any android. Infuriating creatures! It was useless talking to them anyway. No, there was only one thing to do. Round them up and send them to

Cybernetics Lab and have their memory paths erased and their telepathic circuits located and disconnected. I tried to stifle the thought, but I was too late.

"Oh, no!" Jerry said, his eye-cells flashing crimson. "Try that, Mr. Morrison, and you won't have a plant, or a laboratory, or Carron City! We know our rights!"

Behind him the B-Types muttered ominously. They didn't like my idea--nor me. I wondered what I'd think of next and wished that I'd been born utterly devoid of imagination. Then this would never have happened. There didn't seem to be much point in staying here any longer, either. Maybe they weren't so good at telepathing by remote control.

"Yes," said Jerry. "You may as well go, Mr. Morrison. We have our organizing to do, and we're wasting time. When you're ready to listen to reason and negotiate with us sensibly, come back. Just ask for me. I'm the bargaining agent for the group."

Turning on his ball-bearing wheel, he rolled off down the street, a perfect picture of outraged metallic dignity. His followers glared at me for a minute, flexing their talons; then they too turned and wheeled off after their leader. I had the street to myself.

There didn't seem to be any point in following them. Evidently they were too busy organizing the city to cause trouble to the human inhabitants; at least there hadn't been any violence yet. Anyway, I wanted to think the situation over before matching wits with them again, and I wanted to be a good distance away from their telepathic hookups while I thought. Slowly I walked back to the Copter.

[Illustration]

Something whooshed past my head. Instinctively I ducked, reaching for a gun I didn't have; then I heard Jack calling down at me.

"The Chief wants to know what's the matter."

I looked up. The police Copter was going into another turn, ready to swoop past me again. Chief Dalton wasn't taking any chances. Even now he wasn't landing.

"I'll tell him at the factory," I bellowed back, and climbed into my

own air car.

They buzzed along behind me all the way back to the plant. In the rear view mirror I could see the Chief's face getting redder and redder as he'd thought up more reasons for bawling me out. Well, I probably deserved it. If I'd only been a little more careful of what I was hooking into those electronic brains....

We landed back at the factory, deserted now except for a couple of men on standby duty in the office. The Chief and Jack came charging across the yard and from a doorway behind me one of the foremen edged out to hear the fun.

"Well," snapped the Chief. "What did they say? Are they coming back? What's going on, anyway?"

I told them everything. I covered the strike and the telepathic brain; I even gave them the patriotic spiel about equality. After all, it was better that they got it from me than from some android. But when I'd finished they just stood and stared at me--accusingly.

Jack was the first to speak. "We've got to get them back, Don," he said. "Cybernetics will fix them up in no time."

"Sure," I agreed. "If we can catch them."

The Chief snorted. "That's easy," he said. "Just tell them you'll give them what they want if they come here, and as soon as they're out of the city, net them. You've got strong derricks and trucks...."

I laughed a bit hollowly. I'd had that idea too.

"Of course they wouldn't suspect," I said. "We'd just walk up to them, carefully thinking about something else."

"Robots aren't suspicious," Jack said. "They're made to obey orders."

I refrained from mentioning that ours didn't seem to know that, and that running around Carron City fomenting a rebellion was hardly the trait of an obedient, trusting servant. Instead, I stood back and let them plan their roundup.

"We'll get some men," the Chief said, "and some grappling equipment about halfway to the city."

* * * * *

Luckily they decided against my trying to persuade the robots, because I knew well enough that I couldn't do it. Jack's idea sounded pretty good, though. He suggested that we send some spokesman who didn't know what we planned to do and thus couldn't alarm them. Some ordinary man without too much imagination. That was easy. We picked one of Chief Dalton's sergeants.

It took only about an hour to prepare the plan. Jack got out the derricks and chains and grapplers and the heaviest steel bodied trucks we had. I called Cybernetics and told them to put extra restraints in the Conditioning Lab. The Chief briefed his sergeant and the men who were to operate the trucks. Then we all took off for Carron City, the sergeant flying on ahead, me right behind him, and the Chief bringing up the rear.

I hovered over the outskirts of the city and watched the police Copter land. The sergeant climbed out, walked down the street toward a large group of waiting robots--about twenty of them, this time. He held up his hand to get their attention, gestured toward the factory.

And then, quite calmly and without saying a word, the androids rolled into a circle around him and closed in. The sergeant stopped, backed up, just as a 5A-Type arm lashed out, picked him up, and slung him carelessly over a metallic shoulder. Ignoring the squirming man, the 5A gestured toward the Copter, and the other robots swarmed over to it. With a flurry of steel arms and legs they kicked at the car body, wrenched at the propeller blades, ripped out the upholstery, and I heard the sound of metal tearing.

I dived my Copter down at them. I didn't know what I could do, but I couldn't leave the poor sergeant to be dismembered along with his car. I must have been shouting, for as I swooped in, the tall robot shifted the man to his other shoulder and hailed me.

"Take him, Mr. Morrison," he called. "I know this wasn't his idea. Or yours."

I landed and walked over. The android--who looked like Jerry, though I couldn't be sure--dropped his kicking, clawing burden at my feet. He didn't seem angry, only determined.

"Now you people will know we mean business," he said, gesturing toward the heap of metal and plastic that had once been the pride of the Carron City police force. Then he signalled to the others and they all wheeled off up the street.

"Whew," I muttered, mopping my face.

The sergeant didn't say anything. He just looked up at me and then off at the retreating androids and then back at me again. I knew what he was thinking--they were my brainchildren, all right.

My Copter was really built to be a single seater, but it carried the two of us back to the factory. The Chief had hurried back when the trouble started and was waiting for us.

"I give up," he said. "We'll have to evacuate the people, I guess. And then blow up the city."

Jack and I stared at each other and then at him. Somehow I couldn't see the robots calmly waiting to be blown up. If they had telepathed the last plan, they could probably foresee every move we could make. Then, while I thought, Jack mentioned the worry I'd managed to forget for the past couple of hours.

"Four days until Saturday," he said. "We'll never make it now. Not even if we got a thousand men."

No. We couldn't. Not without the androids. I nodded, feeling sick. There went my contract, and my working capital. Not to mention my robots. Of course, I could call in the Army, but what good would that do?

Then, somewhere in the back of my mind a glimmering of an idea began percolating. I wasn't quite sure what it was, but there was certainly nothing to lose now from playing a hunch.

"There's nothing we can do," I said. "So we might as well take it easy for a couple of days. See what happens."

They looked at me as if I were out of my head. I was the idea man, who always had a plan of action. Well, this time it would have to be a plan of inaction.

"Let's go listen to the radio," I suggested, and started for my

office.

The news was on. It was all about Carron City and the robots who had quit work and how much better life would be in the future. For a minute I didn't get the connection; then I realized that the announcer's voice was rasping and tinny--hardly that of the regular newscaster. I looked at the dial. It was tuned to the Carron City wave length as usual. I was getting the morning news by courtesy of some studio robot.

"... And androids in other neighboring cities are joining the struggle," the voice went on "Soon we hope to make it nationwide. So I say to all of you nontelepaths, the time is now. Strike for your rights. Listen to your radio and not to the flesh men. Organizers will be sent from Carron City."

I switched it off, muttering under my breath. How long, I wondered, had that broadcast been going on. Then I thought of Rob O. He'd left my house before dawn, obviously some time between four and seven. And I remembered that he liked to listen to the radio while I slept.

* * * * *

My Morrison 5's were the ring-leaders, of course. They were the only ones with the brains for the job. But what a good job they had done indoctrinating the others. A household Rob, for instance, was built to obey his master. "Listen to your radio and not to the flesh men." It was excellent robot psychology.

More reports kept coming in. Some we heard over the radio, others from people who flew in and out of the city. Apparently the robots did not object to occasional flights, but the air bus was not allowed to run, not even with a human driver. A mass exodus from the city was not to be permitted.

"They'll starve to death," Jack cried.

The Chief shook his head. "No," he said. "They're encouraging the farmers to fly in and out with produce, and the farmers are doing it, too. They're getting wonderful prices."

By noon the situation had calmed down quite a bit. The androids obviously didn't mean to hurt anyone; it was just some sort of disagreement between them and the scientists; it wasn't up to the

inhabitants of the city to figure out a solution to the problem. They merely sat back and blamed me for allowing my robots to get out of hand and lead their own servants astray. It would be settled; this type of thing always was. So said the people of the city. They came out of their houses now. They had to. Without the robots they were forced to do their own marketing, their own cooking, their own errands. For the first time in years, human beings ran the street cars and the freight elevators. For the first time in a generation human beings did manual labor such as unloading produce trucks. They didn't like it, of course. They kept telling the police to do something. If I had been in the city they would have undoubtedly wanted to lynch me.

I didn't go back to the city that day. I sat in my office listening to the radio and keeping track of the spread of the strike. My men thought I'd gone crazy; maybe I had. But I had a hunch, and I meant to play it.

The farm robots had all fled to the city. The highway repair robots had simply disappeared. In Egarton, a village about fifteen miles from the city, an organizer--5A--appeared about noon and left soon after followed by every android in town. By one o'clock every radio station in the country carried the story and the national guard was ordered out. At two o'clock Washington announced that the Army would invade Carron City the following morning.

The Army would put an end to the strike, easily enough. It would wiped out every android in the neighborhood, and probably a good many human beings careless enough to get in the way. I sat hoping that the 5A's would give in, but they didn't. They just began saying over the radio that they were patriotic Americans fighting for their inalienable rights as first class citizens.

* * * * *

At sunset I was still listening to the radio. "... So far there has been no indication that the flesh people are willing to negotiate, but hold firm."

"Shut that thing off."

Jack came wearily in and dropped into a chair beside me. For the first time since I'd met him he looked beaten.

"We're through," he said. "I've been down checking the shielding, and

it's no use. Men can't work at the reactors."

"I know," I said quietly. "If the androids don't come back, we're licked."

He looked straight at me and said slowly, "What do they mean about negotiating, Don?"

I shrugged. "I guess they want wages, living quarters, all the things human workers get. Though I don't know why. Money wouldn't do them any good."

Jack's unspoken question had been bothering me too. Why not humor them? Promise them whatever they wanted, give them a few dollars every week to keep them happy? But I knew that it wouldn't work. Not for long. With their telepathic ability they would have the upper hand forever. Within a little while it wouldn't be equality any more--only next time we would be the slaves.

"Wait until morning," I said, "before we try anything."

He looked at me--curious. "What are you going to do?"

"Right now I'm going home."

I meant it too. I left him staring after me and went out to the Copter. The sun was just sinking down behind the towers of Carron City--how long it seemed since I'd flown in there this morning. The roads around the factory were deserted. No one moved in the fields. I flew along through the dusk, idling, enjoying the illusion of having a peaceful countryside all to myself. It had been a pleasant way of life indeed, until now.

When I dropped down on my own roof and rolled into the garage, my sense of being really at home was complete. For there, standing at the head of the stairs that led down to the living room, was Rob O.

"Well," I said: "What are you doing here?"

He looked sheepish. "I just wondered how you were getting along without me," he said.

I felt like grinning triumphantly, but I didn't. "Why, just fine, Rob," I told him, "though you really should have given me notice that

you were leaving. I was worried about you."

He seemed perplexed. Apparently I wasn't acting like the bullying creature the radio had told him to expect. When I went downstairs he followed me, quietly, and I could feel his wide photoelectric eye-cells upon my back.

I went over to the kitchen and lifted a bottle down off the shelf. "Care for a drink, Rob?" I asked, and then added, "I guess not. It would corrode you."

He nodded. Then, as I reached for a glass, his hand darted out, picked it up and set it down in front of me. He was already reaching for the bottle when he remembered.

"You're not supposed to wait on me any more," I said sternly.

"No," he said. "I'm not." He sounded regretful.

"There's one thing, though, that I wish you'd do. Tell me where you used to keep my socks."

He gazed at me sadly. "I made a list," he said. "Everything is down. I wrote your dentist appointment in also. You always forget those, you know."

"Thanks, Rob." I lifted my glass. "Here's to your new duties, whatever they are. I suppose you have to go back to the city now?"

Once again he nodded. "I'm an aide to one of the best androids in the country," he told me, half proudly and half regretfully. "Jerry."

"Well, wish him luck from me," I said, and stood up. "Goodbye, Rob."

"Goodbye, Mr. Morrison."

For a moment he stood staring around the apartment; then he turned and clanked out the door. I raised my glass again, grinning. If only the Army didn't interfere. Then I remembered Rob's list, and a disturbing thought hit me. Where had he, of all robots, ever learned to write?

That night I didn't go to bed. I sat listening to the radio, hoping. And toward morning what I had expected to happen began to crop up in the programs. The announcer's tone changed. The ring of triumph was

less obvious, less assured. There was more and more talk about acting in good faith, the well being of all, the necessity for coming to terms about working conditions. I smiled to myself in the darkness. I'd built the 5's, brains and all, and I knew their symptoms. They were getting bored.

Maybe they had learned to think from me, but their minds were nevertheless different. For they were built to be efficient, to work, to perform. They were the minds of men without foibles, without human laziness. Now that the excitement of organizing was over, now that there was nothing active to do, the androids were growing restless. If only the Army didn't come and get them stirred up again, I might be able to deal with them.

At quarter to five in the morning my telephone rang. This time it didn't wake me up; I was half waiting for it.

"Hello," I said. "Who is it?"

"This is Jerry."

There was a pause. Then he went on, rather hesitantly, "Rob O said you were getting along all right."

"Oh, yes," I told him. "Just fine."

The pause was longer this time. Finally the android asked, "How are you coming along on the contract?"

I laughed, rather bitterly. "How do you think, Jerry? You certainly picked a bad time for your strike, you know. The government needs that uranium. Oh, well, some other plant will have to take over. The Army can wait a few weeks."

This time Jerry's voice definitely lacked self-assurance. "Maybe we were a little hasty," he said. "But it was the only way to make you people understand."

"I know," I told him.

"And you always have some rush project on," he added.

"Just about always."

"Mr. Morrison," he said, and now he was pleading with me. "Why don't you come over to the city? I'm sure we could work something out."

This was what I'd been waiting for. "I will, Jerry," I said. "I want to get this straightened out just as much as you do. After all, you don't have to eat. I do. And I won't be eating much longer if we don't get production going."

Jerry thought that over for a minute. "I'll be where we met before," he said.

I said that was all right with me and hung up. Then once again I climbed the stairs to the roof and wheeled the Copter out for the trip to the city.

It was a beautiful night, just paling into a false dawn in the east. There in the Copter I was very much alone, and very much worried. So much depended on this meeting. Much more, I realized now, than the Don Morrison Fissionables Inc., much more even than the government's uranium supply. No, the whole future of robot relations was at stake, maybe the whole future of humanity. It was hard to be gloomy on such a clear, clean night, but I managed it well enough.

* * * * *

Even before I landed I could see Jerry's eyes glowing a deep crimson in the dark. He was alone, this time. He stood awaiting me--very tall, very proud. And very human.

"Hello, Jerry," I said quietly.

"Hello, Mr. Morrison."

For a moment we just stood gazing at each other in the murky pre-dawn; then he said sadly,

"I want to show you the city."

Side by side we walked through the streets of Carron City. All was still quiet; the people were sleeping the exhausted sleep that follows deep excitement. But the androids were all about. They did not sleep, ever. They did not eat either, nor drink, nor smoke, nor make love. Usually they worked, but now....

They drifted through the streets singly and in groups. Sometimes they paused and felt about them idly for the tools of their trades, making lifting or sweeping or computing gestures. Some laborers worked silently tearing down a wall; they threw the demolished rocks in a heap and a group of their fellows carried them back and built the wall up again. An air trolley cruised aimlessly up and down the street, its driver ringing out the stops for his nonexistent passengers. A little chef-type knelt in the dirt of a rich man's garden, making mud pies. Beside me Jerry sighed.

"One day," he said. "Just one day and they come to this."

"I thought they would," I answered quietly.

Our eyes met in a look of understanding. "You see, Jerry," I said, "we never meant to cheat you. We would have paid you--we will pay you now, if you wish it. But what good will monetary credits be to your people? We need the things money buys, but you--"

"Need to work." Jerry's voice was flat. "I see, now. You were kind not to give brains--real brains--to the robots. They're happy. It's just us 5's who aren't."

"You're like us," I said softly.

He had learned to think from me and from others like me. He had the brain of a man, without the emotions, without the sweet irrationality of men--and he knew what he missed. Side by side we walked through the graying streets. Human and android. Man and machine. And I knew that I had found a friend.

We didn't have to talk any more. He could read my mind and I knew well enough how his worked. We didn't have to discuss wages or hours, or any of the myriad matters that human bargaining agents have to thresh out. We just walked back to my Copter, and when we got to it, he spoke.

"I'll tell them to go back to work, that we've come to terms," he said. "That's what they want, anyway. Someone to think for them."

I nodded. "And if you bring the other 5's to the factory," I said, "we'll work out our agreement."

He knew I was sincere. He looked at me for a long moment, and then

his great taloned hand gripped mine. And he said what I'd been thinking for a long time.

"You're right about that hook-up, Mr. Morrison. We shouldn't have it. It can only cause trouble."

He paused, and the events of the last twenty-four hours must have been in his mind as well as in mine. "You'll leave us our brains, of course. They came from you. But take out the telepathy."

He sighed then, and his sigh was very human. "Be thankful," he said to me, "that you don't have to know what people think about. It's so disillusioning."

* * * * *

Once again his mouth twisted into that strange android grin as he added, "if you send in a hurry call to Cybernetics and have a truck come out for us, we'll be de-telepathed in time for work this morning."

That was all there was to it. I flew back to the plant and told Jack what had happened, sent a call to the Army that everything was settled, arranged with Cybernetics for a rewiring on three hundred assorted 5-Types. Then I went home to a pot of Rob's coffee--the first decent brew I'd had in twenty-four hours.

On Saturday we delivered to the Army right on the dot. Jerry and Co. had worked overtime. Being intelligent made them better workers and now they were extremely willing ones. They had their contract. They were considered men. And they could no longer read my mind.

I walked into my office Saturday afternoon and sat down by the radio. Jack and Chief Dalton looked across the room at me and grinned.

"All right, Don," Jack said. "Tell us how you did it."

"Did what?" I tried to act innocent, but I couldn't get away with it.

"Fooled those robots into going back to work, of course," he laughed.

I told them then. Told them the truth.

"I didn't fool them," I said. "I just thought about what would happen

if they won their rebellion."

That was all I _had_ done. Thought about robots built to work who had no work to do, no human pleasures to cater to, nothing but blank, meaningless lives. Thought about Jerry and his disappointment when his creatures cared not a hoot about his glorious dreams of equality. All one night I had thought, knowing that as I thought, so thought the Morrison 5's.

They were telepaths. They had learned to think from me. They had not yet had time to really develop minds of their own. What I believed, they believed. My ideas were their ideas. I had not tricked them. But from now on, neither I nor anyone else would ever be troubled by an android rebellion.

Jack and the Chief sat back open-mouthed. Then the Chief grinned, and both of his chins shook with laughter.

"I always did say you were a clever one, Don Morrison," he said.

I grinned back. I felt I was pretty clever myself, just then.

It was at that moment that my youngest foreman stuck his head in the door, a rather stunned look on his face.

"Mr. Morrison," he said. "Will you come out here for a moment?"

"What's the matter now?" I sighed.

He looked more perplexed than ever. "It's that robot, Jerry," he said. "He says he has a very important question to ask you."

"Well, send him in."

A moment later the eight-foot frame ducked through the doorway.

"I'm sorry to trouble you, Mr. Morrison," Jerry said politely. "But tomorrow is voting day, you know. And now that we're men--well, where do we androids go to register?"

==========

Five-Gun DeCrabbe was the terror of
every planet--especially to his friends!

[Transcriber's Note: This etext was produced from
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Those of the city of Featherton, on Grimes Planet, were with him to a man. Feathertonians cheered and waved from their windows that morning, not daring to come out for fear of the whirlybirds, and admiring Five-gun Charles DeCrabbe all the more for riding down the main stem of the town with the bubble of his convertible space coupe slid back--ignoring the menace from the skies.

Five-gun Charles DeCrabbe rode down the exact center of the street, looking neither to right or left, not acknowledging the screams of adulation that poured from the windows. His bare head was up, his mouth was pressed into firm, haughty lines of self-confidence and even his battle dress of dark green seemed to exude the aura of a competent killer.

Five-gun Charles DeCrabbe had come to clean up the town. Of whirlybirds.

He stopped his space convertible in front of the white stone building titled City Hall on its facade. The two men waiting to greet him stayed safely under the bullet-shaped marquee as he alighted. He jumped over the side, checked his two holstered needle pistols, slung his explosive pellet rifle over one shoulder, his N-ray flashburn gun over the other shoulder and picked up his rocket-powered stun-gas spray gun in his hands. He strode over to the waiting men.

"I'm Alson Prince, Mayor of Featherton," said the older man shaking hands with the one DeCrabbe stuck out from under the spray gun. "And you are Five-gun Charles DeCrabbe?"

"Yes yes yes!" exclaimed DeCrabbe impatiently in his clipped speech.

"I'm the mayor's son," introduced the younger man with admiration shining in his eyes. "You sure look like you're ready to whip those whirlybirds."

"Yes yes yes!" exclaimed DeCrabbe haughtily. "Always dislike long conversations you know. Supposing you tell me what you know so can exterminate them without further delay. No doubt solution before dusk."

"Before dusk?" asked the mayor, dumfounded. "Oh, no, not today, I'm afraid. They've been around too many years to whip in one day."

"Perhaps shall require two days then," said Five-gun Charles DeCrabbe graciously. "But doubt it. Tell me what you know of them."

* * * * *

"Very well," assented the older man. "Perhaps the best place to begin is with their name. When we first occupied this planet, a bare twenty years ago, we called them wolfhawk-whirlybirds and tigerhawk-whirlybirds because they preyed on vicious animals. The whirlybirds were our best friends in those days. The only trouble is that they ran out of tigers and wolves to eat."

"Presumed they are now called peoplehawk-whirlybirds?" DeCrabbe frowningly asked in his clipped speech.

"Exactly!" answered the older man. "Although that isn't their full name. From the way they attack--"

"Most important," interrupted Five-gun. "Give to me in detail."

"They prefer to attack strollers, although they have attacked on city streets when there is little traffic. They fly with amazing speed, considering they are an untidy ball forty feet in diameter, and they are on top of their victims before the unlucky ones are aware of the menace. Blowing their victims down with a rush of air from their feathers, they grab them up by the heels, carry them high aloft and drop them on piles of rock outside of town."

"They are _downdraft_-peoplehawk-whirlybirds then?" asked DeCrabbe.

"That's almost it," agreed the mayor. "I have not yet told you of their cries. As they rise in the air with the victim dangling from their talons by his heels, they utter a pleased 'Coo! Coo!' like a gentle dove. That is why they are called Coocoo-downdraft-peoplehawk-whirlybirds."

"Approve of adequate names," nodded Five-gun, unbending a trifle. "First step toward efficiency. Only one thing haven't made clear. Presumably have shotguns and rifles. Why unable drive off these predators yourselves?"

The mayor laughed bitterly. "It would be easy to tell you'd just arrived on this planet--although the birds are not well known in the other cities either; they are all concentrated in this area. Yes, our sportsmen tried to shoot down the whirlybirds. No luck, of course. Imagine the problems you have when one of these forty-foot balls of commotion comes at you: You try to aim but you can't hold your arm still because of the swirling wind they raise; and then the dust clouds thicken and you're firing wildly, and you can't begin to tell which is body and which is feathers anyway."

"Very well," accepted Charles DeCrabbe mercifully. "You've made attempt. My first step therefore the attachment of high explosives to boobytrapped mannequins. Brought these with me."

* * * * *

"Great winds of catastrophe. I'm glad you mentioned it before you did it!" exclaimed the mayor. "We tried that once. The city was six weeks digging out from under the feathers--and it didn't kill the whirlybird!"

"Aren't you exaggerating difficulties encountered in picking up few feathers?" loftily inquired DeCrabbe.

"How do you think we got the name of Featherton? Before the deluge we were called West Applebury!"

"Then why haven't you attempted lure them into boobytraps outside town? Could detonate them there without even slight inconvenience of picking up feathers."

"Believe me, if there were only a _few_ feathers," insisted Mayor Prince, "few enough for you to pick up by yourself, we wouldn't mind you blowing up a whirlybird."

"Wasn't considering picking up _any_ feathers," replied Five-gun with dignity. "Had supposed a menial or two could be supplied for that."

The mayor shook his head. "It would take everybody in town to clean up. And as for blowing one up outside the city, one of our orchardists

tried it. He blew it to bits all right, but eighty acres of his apple trees were smothered under the debris!"

"Now anticipate that the extermination of the whirlybirds will almost certainly take me up to two days," conceded Five-gun DeCrabbe calmly. "However will be all the more interesting to defeat them without recourse large explosives."

"Gee, what a man!" admired the mayor's son. "Only two days!"

"If you will now lead me to your city park will begin campaign of extermination at once."

"It's down that way," said the mayor, pointing. Plainly he had no intention of leaving the shelter of the marquee. "You can't miss it."

As Five-gun Charles DeCrabbe leaped back into his craft and started off, the mayor's son called after him, "Aren't you scared, going out exposed like that?"

DeCrabbe turned. "Am armed, young man," he retorted severely.

"Yeah, but those whirlybirds don't pay any attention to guns."

"Soon will," DeCrabbe replied, unruffled.

Slowly he drove down the center of the empty street, receiving more cheers from heads thrust out of windows. He arrived at the city park and turned in. He unloaded most of his equipment under the roof of the bandstand.

A few minutes later one of his robot mannequins moved slowly around the clearing before the bandstand, its control set for slow walking to conserve its atomic battery. The predator hunter unlimbered all his guns as he sat under the bandstand roof waiting.

It was an hour before the first whirlybird attacked.

His first warning was the rising wind. His gaze moved around the sky until he found the rapidly growing black spot. A few seconds later it became a universe-engulfing blackness as it spotted the mannequin and came down for it. As soon as the wind-screaming blackness reached the mannequin, the needle guns in his hands emptied their hundreds of anesthetizing needles into the turbulence. But it was as the mayor had

said. Where did the bird's body end and the feathers begin? When the needle pistols were empty he dropped them and snatched up the rocket powered stun-gas weapon; its immense flare poured into the blackness without visible result. He dropped it and grabbed the N-ray flashburn gun. The forty-foot ball of fury was beginning to rise high with its prey now, as the gun stuttered fifty bolts of burning lethal radiation into it. He smelled feathers that time. Finally as the giant bird, without faltering, rose above the range of the N-ray gun, he took to the explosive pellet rifle. It had only ten shots; all of these went into the center of the blackness well before the whirlybird had flown beyond range. And as it neared the horizon with its mannequin prey, he heard its sweet song:

"Coo! Coo!"

"How _dare_ it coo after all I did to it?" muttered DeCrabbe grimly. "Shall not coo next time!"

* * * * *

Half an hour later a new mannequin stood out in front of the bandstand. Its arms waved ceaselessly but it stood still. Nestled against its back was a ten gallon drum of gas, which would be exploded--blanketing most of the park in fumes--as soon as the mannequin was moved. Charles DeCrabbe waited, his mask ready, his potent weapons all reloaded.

Ninety minutes later the huge black menace arrived--either the first whirlybird or another forty-foot wind-screaming fury. Slipping his gas mask on, the man waited for the right moment to begin firing. The whirlybird swooped down, the tank exploded in a fog, and the giant wobbled!

DeCrabbe emptied all his weapons again. The bird arose, wobbling, its speed greatly impaired, but making its getaway despite all he could do.

"Damn well didn't coo that time," he said when the monster had reached the horizon. "Next time won't fly either."

But just then the monstrous bird mocked him in the distance with a loud, sweet, "Coo! Coo!"

Shortly after lunch he had it all set up. A new mannequin stood out in front of the bandstand, its arms waving and a pair of slim, gleaming, ten-gallon drums of stun gas nearby.

It was one o'clock before the third whirlybird struck.

Down it sank until it became a huge, ebony blot in the afternoon sky. Underneath the bandstand roof DeCrabbe got ready for his supreme effort. He slipped on his gas mask and made sure his N-ray flashburn gun was ready for instant action, its safety off. He was determined that if he got the bird prostrate he would climb aboard and fire N-ray bolts into it until something _gave_!

The huge black, wind-screaming monster plummeted the last few yards down and grabbed the mannequin. Both tanks of stun gas exploded. The giant whirlybird slumped unconscious--and DeCrabbe scrambled aboard!

The feverishly hurrying hunter was not long discovering why he had not--and never would--penetrate the bird's feathers with any of his weapons: He burrowed down into the feathers the length of his arm and there were yet more feathers beyond! A feather pillow would stop a rifle bullet, he knew, and this monster had the probable equivalent of a thousand feather pillows protecting it, invulnerable as a battleship.

And just then the maneater awoke, wobbled into the air, and flew away before DeCrabbe could get off!

* * * * *

The following afternoon, as Five-gun Charles DeCrabbe made his farewell of the city of Featherton, he once more drove down the center of the street with the bubble of his space convertible slid back.

Yet there was a difference this time. The mayor and his son rode beside him on the seat, and all of the people were now out of doors standing along the curb, cheering their deliverer wildly as he passed.

"I can't tell you how much I personally appreciate what you've done for us," said the mayor humbly.

"Quite quite quite!" returned Five-gun haughtily in his clipped speech, hoping to shut off the man's tendency toward windyness.

With awe in his voice the mayor's son admired, "So instead of being scared to death you were all ready for action when you and the whirlybird landed at their rocky, mountain lair?"

"Yes yes yes! Slid off its back, hid between two boulders, waited for the appropriate moment. After bagging that one, waited for other monsters as they landed, one by one. Bagged them."

"Just like that!" said the youngster. "You just get up close enough for those peoplehawks to grab you and then you bagged them."

"Only possible way is my way," clipped DeCrabbe immovably.

"Its eyes couldn't be buried deeply in feathers if they were to be of use."

"So?"

"So eye is proximate to beak--and brain," said the hunter with dignity. "Where one of its _coo-coos_ came out, one of my N-ray bolts went in, and that was that!"

==========

Project Gutenberg's
Retief of the Red-Tape Mountain, by Keith Laumer

Retief knew the importance of sealed
orders--and the need to keep them that way!

"It's true," Consul Passwyn said, "I requested assignment as principal officer at a small post. But I had in mind one of those charming resort worlds, with only an occasional visa problem, or perhaps a distressed spaceman or two a year. Instead, I'm zoo-keeper to these confounded settlers. And not for one world, mind you, but eight!" He stared glumly at Vice-Consul Retief.

"Still," Retief said, "it gives an opportunity to travel--"

"Travel!" the consul barked. "I hate travel. Here in this backwater

system particularly--" He paused, blinked at Retief and cleared his throat. "Not that a bit of travel isn't an excellent thing for a junior officer. Marvelous experience."

He turned to the wall-screen and pressed a button. A system triagram appeared: eight luminous green dots arranged around a larger disk representing the primary. He picked up a pointer, indicating the innermost planet.

"The situation on Adobe is nearing crisis. The confounded settlers--a mere handful of them--have managed, as usual, to stir up trouble with an intelligent indigenous life form, the Jaq. I can't think why they bother, merely for a few oases among the endless deserts. However I have, at last, received authorization from Sector Headquarters to take certain action." He swung back to face Retief. "I'm sending you in to handle the situation, Retief--under sealed orders." He picked up a fat buff envelope. "A pity they didn't see fit to order the Terrestrial settlers out weeks ago, as I suggested. Now it is too late. I'm expected to produce a miracle--a rapprochement between Terrestrial and Adoban and a division of territory. It's idiotic. However, failure would look very bad in my record, so I shall expect results."

He passed the buff envelope across to Retief.

"I understood that Adobe was uninhabited," Retief said, "until the Terrestrial settlers arrived."

"Apparently, that was an erroneous impression." Passwyn fixed Retief with a watery eye. "You'll follow your instructions to the letter. In a delicate situation such as this, there must be no impulsive, impromptu element introduced. This approach has been worked out in detail at Sector. You need merely implement it. Is that entirely clear?"

"Has anyone at Headquarters ever visited Adobe?"

"Of course not. They all hate travel. If there are no other questions, you'd best be on your way. The mail run departs the dome in less than an hour."

"What's this native life form like?" Retief asked, getting to his feet.

"When you get back," said Passwyn, "you tell me."

* * * * *

The mail pilot, a leathery veteran with quarter-inch whiskers, spat toward a stained corner of the compartment, leaned close to the screen.

"They's shootin' goin' on down there," he said. "See them white puffs over the edge of the desert?"

"I'm supposed to be preventing the war," said Retief. "It looks like I'm a little late."

The pilot's head snapped around. "War?" he yelped. "Nobody told me they was a war goin' on on 'Dobe. If that's what that is, I'm gettin' out of here."

"Hold on," said Retief. "I've got to get down. They won't shoot at you."

"They shore won't, sonny. I ain't givin' 'em the chance." He started punching keys on the console. Retief reached out, caught his wrist.

"Maybe you didn't hear me. I said I've got to get down."

The pilot plunged against the restraint, swung a punch that Retief blocked casually. "Are you nuts?" the pilot screeched. "They's plenty shootin' goin' on fer me to see it fifty miles out."

"The mail must go through, you know."

"Okay! You're so dead set on gettin' killed, you take the skiff. I'll tell 'em to pick up the remains next trip."

"You're a pal. I'll take your offer."

The pilot jumped to the lifeboat hatch and cycled it open. "Get in. We're closin' fast. Them birds might take it into their heads to lob one this way...."

Retief crawled into the narrow cockpit of the skiff, glanced over the controls. The pilot ducked out of sight, came back, handed Retief a heavy old-fashioned power pistol. "Long as you're goin' in, might as well take this."

"Thanks." Retief shoved the pistol in his belt. "I hope you're wrong."

"I'll see they pick you up when the shootin's over--one way or another."

The hatch clanked shut. A moment later there was a jar as the skiff dropped away, followed by heavy buffeting in the backwash from the departing mail boat. Retief watched the tiny screen, hands on the manual controls. He was dropping rapidly: forty miles, thirty-nine....

A crimson blip showed on the screen, moving out.

Retief felt sweat pop out on his forehead. The red blip meant heavy radiation from a warhead. Somebody was playing around with an outlawed but by no means unheard of fission weapon. But maybe it was just on a high trajectory and had no connection with the skiff....

Retief altered course to the south. The blip followed.

He checked instrument readings, gripped the controls, watching. This was going to be tricky. The missile bored closer. At five miles Retief threw the light skiff into maximum acceleration, straight toward the oncoming bomb. Crushed back in the padded seat, he watched the screen, correcting course minutely. The proximity fuse should be set for no more than 1000 yards.

At a combined speed of two miles per second, the skiff flashed past the missile, and Retief was slammed violently against the restraining harness in the concussion of the explosion ... a mile astern, and harmless.

Then the planetary surface was rushing up with frightening speed. Retief shook his head, kicked in the emergency retro-drive. Points of light arced up from the planet face below. If they were ordinary chemical warheads the skiff's meteor screens should handle them. The screen flashed brilliant white, then went dark. The skiff flipped on its back. Smoke filled the tiny compartment. There was a series of shocks, a final bone-shaking concussion, then stillness, broken by the ping of hot metal contracting.

* * * * *

Coughing, Retief disengaged himself from the shock-webbing. He beat out sparks in his lap, groped underfoot for the hatch and wrenched it open. A wave of hot jungle air struck him. He lowered himself to a bed of shattered foliage, got to his feet ... and dropped flat as a bullet whined past his ear.

He lay listening. Stealthy movements were audible from the left.

He inched his way to the shelter of a broad-boled dwarf tree. Somewhere a song lizard burbled. Whining insects circled, scented alien life, buzzed off. There was another rustle of foliage from the underbrush five yards away. A bush quivered, then a low bough dipped.

Retief edged back around the trunk, eased down behind a fallen log. A stocky man in grimy leather shirt and shorts appeared, moving cautiously, a pistol in his hand.

As he passed, Retief rose, leaped the log and tackled him.

They went down together. The stranger gave one short yell, then struggled in silence. Retief flipped him onto his back, raised a fist--

"Hey!" the settler yelled. "You're as human as I am!"

"Maybe I'll look better after a shave," said Retief. "What's the idea of shooting at me?"

"Lemme up. My name's Potter. Sorry 'bout that. I figured it was a Flap-jack boat; looks just like 'em. I took a shot when I saw something move. Didn't know it was a Terrestrial. Who are you? What you doin' here? We're pretty close to the edge of the oases. That's Flap-jack country over there." He waved a hand toward the north, where the desert lay.

"I'm glad you're a poor shot. That missile was too close for comfort."

"Missile, eh? Must be Flap-jack artillery. We got nothing like that."

"I heard there was a full-fledged war brewing," said Retief. "I didn't expect--"

"Good!" Potter said. "We figured a few of you boys from Ivory would be joining up when you heard. You are from Ivory?"

"Yes. I'm--"

"Hey, you must be Lemuel's cousin. Good night! I pretty near made a bad mistake. Lemuel's a tough man to explain something to."

"I'm--"

"Keep your head down. These damn Flap-jacks have got some wicked hand weapons. Come on...." He moved off silently on all fours. Retief followed. They crossed two hundred yards of rough country before Potter got to his feet, took out a soggy bandana and mopped his face.

"You move good for a city man. I thought you folks on Ivory just sat under those domes and read dials. But I guess bein' Lemuel's cousin you was raised different."

"As a matter of fact--"

"Have to get you some real clothes, though. Those city duds don't stand up on 'Dobe."

Retief looked down at the charred, torn and sweat-soaked powder-blue blazer and slacks.

"This outfit seemed pretty rough-and-ready back home," he said. "But I guess leather has its points."

"Let's get on back to camp. We'll just about make it by sundown. And, look. Don't say anything to Lemuel about me thinking you were a Flap-jack."

"I won't, but--"

Potter was on his way, loping off up a gentle slope. Retief pulled off the sodden blazer, dropped it over a bush, added his string tie and followed Potter.

II

"We're damn glad you're here, mister," said a fat man with two revolvers belted across his paunch. "We can use every hand. We're in bad shape. We ran into the Flap-jacks three months ago and we haven't made a smart move since. First, we thought they were a native form we hadn't run into before. Fact is, one of the boys shot one, thinkin' it was fair game. I guess that was the start of it." He stirred the fire, added a stick.

"And then a bunch of 'em hit Swazey's farm here," Potter said. "Killed two of his cattle, and pulled back."

"I figure they thought the cows were people," said Swazey. "They were out for revenge."

"How could anybody think a cow was folks?" another man put in. "They don't look nothin' like--"

"Don't be so dumb, Bert," said Swazey. "They'd never seen Terries before. They know better now."

Bert chuckled. "Sure do. We showed 'em the next time, didn't we, Potter? Got four."

"They walked right up to my place a couple days after the first time," Swazey said. "We were ready for 'em. Peppered 'em good. They cut and run."

"Flopped, you mean. Ugliest lookin' critters you ever saw. Look just like a old piece of dirty blanket humpin' around."

"It's been goin' on this way ever since. They raid and then we raid. But lately they've been bringing some big stuff into it. They've got some kind of pint-sized airships and automatic rifles. We've lost four men now and a dozen more in the freezer, waiting for the med ship. We can't afford it. The colony's got less than three hundred able-bodied men."

"But we're hanging onto our farms," said Potter. "All these oases are old sea-beds--a mile deep, solid topsoil. And there's a couple of hundred others we haven't touched yet. The Flap-jacks won't get 'em while there's a man alive."

"The whole system needs the food we can raise," Bert said. "These farms we're trying to start won't be enough but they'll help."

"We been yellin' for help to the CDT, over on Ivory," said Potter. "But you know these Embassy stooges."

"We heard they were sending some kind of bureaucrat in here to tell us to get out and give the oases to the Flap-jacks," said Swazey. He tightened his mouth. "We're waitin' for him...."

"Meanwhile we got reinforcements comin' up, eh, boys?" Bert winked at Retief. "We put out the word back home. We all got relatives on Ivory

and Verde."

"Shut up, you damn fool!" a deep voice grated.

"Lemuel!" Potter said. "Nobody else could sneak up on us like that."

"If I'd a been a Flap-jack; I'd of et you alive," the newcomer said, moving into the ring of fire, a tall, broad-faced man in grimy leather. He eyed Retief.

"Who's that?"

"What do ya mean?" Potter spoke in the silence. "He's your cousin...."

"He ain't no cousin of mine," Lemuel said slowly. He stepped to Retief.

"Who you spyin' for, stranger?" he rasped.

* * * * *

Retief got to his feet. "I think I should explain--"

A short-nosed automatic appeared in Lemuel's hand, a clashing note against his fringed buckskins.

"Skip the talk. I know a fink when I see one."

"Just for a change, I'd like to finish a sentence," said Retief. "And I suggest you put your courage back in your pocket before it bites you."

"You talk too damned fancy to suit me."

"Maybe. But I'm talking to suit me. Now, for the last time, put it away."

Lemuel stared at Retief. "You givin' me orders...?"

Retief's left fist shot out, smacked Lemuel's face dead center. He stumbled back, blood starting from his nose; the pistol fired into the dirt as he dropped it. He caught himself, jumped for Retief ... and met a straight right that snapped him onto his back: out cold.

"Wow!" said Potter. "The stranger took Lem ... in two punches!"

"One," said Swazey. "That first one was just a love tap."

Bert froze. "Hark, boys," he whispered. In the sudden silence a night lizard called. Retief strained, heard nothing. He narrowed his eyes, peered past the fire--

With a swift lunge he seized up the bucket of drinking water, dashed it over the fire, threw himself flat. He heard the others hit the dirt a split second behind him.

"You move fast for a city man," breathed Swazey beside him. "You see pretty good too. We'll split and take 'em from two sides. You and Bert from the left, me and Potter from the right."

"No," said Retief. "You wait here. I'm going out alone."

"What's the idea...?"

"Later. Sit tight and keep your eyes open." Retief took a bearing on a treetop faintly visible against the sky and started forward.

* * * * *

Five minutes' stealthy progress brought him to a slight rise of ground. With infinite caution he raised himself, risking a glance over an out-cropping of rock.

The stunted trees ended just ahead. Beyond, he could make out the dim contour of rolling desert. Flap-jack country. He got to his feet, clambered over the stone--still hot after a day of tropical heat--and moved forward twenty yards. Around him he saw nothing but drifted sand, palely visible in the starlight, and the occasional shadow of jutting shale slabs. Behind him the jungle was still.

He sat down on the ground to wait.

It was ten minutes before a movement caught his eye. Something had separated itself from a dark mass of stone, glided across a few yards of open ground to another shelter. Retief watched. Minutes passed. The shape moved again, slipped into a shadow ten feet distant. Retief felt the butt of the power pistol with his elbow. His guess had better be right this time....

There was a sudden rasp, like leather against concrete, and a flurry of

sand as the Flap-jack charged.

Retief rolled aside, then lunged, threw his weight on the flopping Flap-jack--a yard square, three inches thick at the center and all muscle. The ray-like creature heaved up, curled backward, its edge rippling, to stand on the flattened rim of its encircling sphincter. It scrabbled with prehensile fringe-tentacles for a grip on Retief's shoulders. He wrapped his arms around the alien and struggled to his feet. The thing was heavy. A hundred pounds at least. Fighting as it was, it seemed more like five hundred.

The Flap-jack reversed its tactics, went limp. Retief grabbed, felt a thumb slip into an orifice--

The alien went wild. Retief hung on, dug the thumb in deeper.

"Sorry, fellow," he muttered between clenched teeth. "Eye-gouging isn't gentlemanly, but it's effective...."

The Flap-jack fell still, only its fringes rippling slowly. Retief relaxed the pressure of his thumb; the alien gave a tentative jerk; the thumb dug in.

The alien went limp again, waiting.

"Now we understand each other," said Retief. "Take me to your leader."

* * * * *

Twenty minutes' walk into the desert brought Retief to a low rampart of thorn branches: the Flap-jacks' outer defensive line against Terry forays. It would be as good a place as any to wait for the move by the Flap-jacks. He sat down and eased the weight of his captive off his back, but kept a firm thumb in place. If his analysis of the situation was correct, a Flap-jack picket should be along before too long....

A penetrating beam of red light struck Retief in the face, blinked off. He got to his feet. The captive Flap-jack rippled its fringe in an agitated way. Retief tensed his thumb in the eye-socket.

"Sit tight," he said. "Don't try to do anything hasty...." His remarks were falling on deaf ears--or no ears at all--but the thumb spoke as loudly as words.

There was a slither of sand. Another. He became aware of a ring of presences drawing closer.

Retief tightened his grip on the alien. He could see a dark shape now, looming up almost to his own six-three. It looked like the Flap-jacks came in all sizes.

A low rumble sounded, like a deep-throated growl. It strummed on, faded out. Retief cocked his head, frowning.

"Try it two octaves higher," he said.

"Awwrrp! Sorry. Is that better?" a clear voice came from the darkness.

"That's fine," Retief said. "I'm here to arrange a prisoner exchange."

"Prisoners? But we have no prisoners."

"Sure you have. Me. Is it a deal?"

"Ah, yes, of course. Quite equitable. What guarantees do you require?"

"The word of a gentleman is sufficient." Retief released the alien. It flopped once, disappeared into the darkness.

"If you'd care to accompany me to our headquarters," the voice said, "we can discuss our mutual concerns in comfort."

"Delighted."

Red lights blinked briefly. Retief glimpsed a gap in the thorny barrier, stepped through it. He followed dim shapes across warm sand to a low cave-like entry, faintly lit with a reddish glow.

"I must apologize for the awkward design of our comfort-dome," said the voice. "Had we known we would be honored by a visit--"

"Think nothing of it," Retief said. "We diplomats are trained to crawl."

Inside, with knees bent and head ducked under the five-foot ceiling, Retief looked around at the walls of pink-toned nacre, a floor like burgundy-colored glass spread with silken rugs and a low table of polished red granite that stretched down the center of the spacious room, set out with silver dishes and rose-crystal drinking-tubes.

III

"Let me congratulate you," the voice said.

Retief turned. An immense Flap-jack, hung with crimson trappings, rippled at his side. The voice issued from a disk strapped to its back. "You fight well. I think we will find in each other worthy adversaries."

"Thanks. I'm sure the test would be interesting, but I'm hoping we can avoid it."

"Avoid it?" Retief heard a low humming coming from the speaker in the silence. "Well, let us dine," the mighty Flap-jack said at last. "We can resolve these matters later. I am called Hoshick of the Mosaic of the Two Dawns."

"I'm Retief." Hoshick waited expectantly, "... of the Mountain of Red Tape," Retief added.

"Take place, Retief," said Hoshick. "I hope you won't find our rude couches uncomfortable." Two other large Flap-jacks came into the room, communed silently with Hoshick. "Pray forgive our lack of translating devices," he said to Retief. "Permit me to introduce my colleagues...."

A small Flap-jack rippled the chamber bearing on its back a silver tray laden with aromatic food. The waiter served the four diners, filled the drinking tubes with yellow wine. It smelled good.

"I trust you'll find these dishes palatable," said Hoshick. "Our metabolisms are much alike, I believe." Retief tried the food. It had a delicious nut-like flavor. The wine was indistinguishable from Chateau d'Yquem.

"It was an unexpected pleasure to encounter your party here," said Hoshick. "I confess at first we took you for an indigenous earth-grubbing form, but we were soon disabused of that notion." He raised a tube, manipulating it deftly with his fringe tentacles. Retief returned the salute and drank.

"Of course," Hoshick continued, "as soon as we realized that you were sportsmen like ourselves, we attempted to make amends by providing a bit of activity for you. We've ordered out our heavier equipment and a

few trained skirmishers and soon we'll be able to give you an adequate show. Or so I hope."

"Additional skirmishers?" said Retief. "How many, if you don't mind my asking?"

"For the moment, perhaps only a few hundred. There-after ... well, I'm sure we can arrange that between us. Personally I would prefer a contest of limited scope. No nuclear or radiation-effect weapons. Such a bore, screening the spawn for deviations. Though I confess we've come upon some remarkably useful sports. The rangerform such as you made captive, for example. Simple-minded, of course, but a fantastically keen tracker."

"Oh, by all means," Retief said. "No atomics. As you pointed out, spawn-sorting is a nuisance, and then too, it's wasteful of troops."

"Ah, well, they are after all expendable. But we agree: no atomics. Have you tried the ground-gwack eggs? Rather a specialty of my Mosaic...."

"Delicious," said Retief. "I wonder. Have you considered eliminating weapons altogether?"

* * * * *

A scratchy sound issued from the disk. "Pardon my laughter," Hoshick said, "but surely you jest?"

"As a matter of fact," said Retief, "we ourselves seldom use weapons."

"I seem to recall that our first contact of skirmishforms involved the use of a weapon by one of your units."

"My apologies," said Retief. "The--ah--the skirmishform failed to recognize that he was dealing with a sportsman."

"Still, now that we have commenced so merrily with weapons...." Hoshick signaled and the servant refilled tubes.

"There is an aspect I haven't yet mentioned," Retief went on. "I hope you won't take this personally, but the fact is, our skirmishforms think of weapons as something one employs only in dealing with certain specific life-forms."

"Oh? Curious. What forms are those?"

"Vermin. Or 'varmints' as some call them. Deadly antagonists, but lacking in caste. I don't want our skirmishforms thinking of such worthy adversaries as yourself as varmints."

"Dear me! I hadn't realized, of course. Most considerate of you to point it out." Hoshick clucked in dismay. "I see that skirmishforms are much the same among you as with us: lacking in perception." He laughed scratchily. "Imagine considering us as--what was the word?--varmints."

"Which brings us to the crux of the matter. You see, we're up against a serious problem with regard to skirmishforms. A low birth rate. Therefore we've reluctantly taken to substitutes for the mass actions so dear to the heart of the sportsman. We've attempted to put an end to these contests altogether...."

Hoshick coughed explosively, sending a spray of wine into the air. "What are you saying?" he gasped. "Are you proposing that Hoshick of the Mosaic of the Two Dawns abandon honor....?"

"Sir!" said Retief sternly. "You forget yourself. I, Retief of the Red Tape Mountain, make an alternate proposal more in keeping with the newest sporting principles."

"New?" cried Hoshick. "My dear Retief, what a pleasant surprise! I'm enthralled with novel modes. One gets so out of touch. Do elaborate."

"It's quite simple, really. Each side selects a representative and the two individuals settle the issue between them."

"I ... um ... fear I don't understand. What possible significance could one attach to the activities of a couple of random skirmishforms?"

"I haven't made myself clear," said Retief. He took a sip of wine. "We don't involve the skirmishforms at all. That's quite passe."

"You don't mean...?"

"That's right. You and me."

* * * * *

Outside on the starlit sand Retief tossed aside the power pistol, followed it with the leather shirt Swazey had lent him. By the faint light he could just make out the towering figure of the Flap-jack rearing up before him, his trappings gone. A silent rank of Flap-jack retainers were grouped behind him.

"I fear I must lay aside the translator now, Retief," said Hoshick. He sighed and rippled his fringe tentacles. "My spawn-fellows will never credit this. Such a curious turn fashion has taken. How much more pleasant it is to observe the action of the skirmishforms from a distance."

"I suggest we use Tennessee rules," said Retief. "They're very liberal. Biting, gouging, stomping, kneeing and of course choking, as well as the usual punching, shoving and kicking."

"Hmmm. These gambits seem geared to forms employing rigid endo-skeletons; I fear I shall be at a disadvantage."

"Of course," Retief said, "if you'd prefer a more plebeian type of contest...."

"By no means. But perhaps we could rule out tentacle-twisting, just to even it."

"Very well. Shall we begin?"

With a rush Hoshick threw himself at Retief, who ducked, whirled, and leaped on the Flap-jack's back ... and felt himself flipped clear by a mighty ripple of the alien's slab-like body. Retief rolled aside as Hoshick turned on him; he jumped to his feet and threw a right hay-maker to Hoshick's mid-section. The alien whipped his left fringe around in an arc that connected with Retief's jaw, sent him spinning onto his back ... and Hoshick's weight struck him.

Retief twisted, tried to roll. The flat body of the alien blanketed him. He worked an arm free, drumming blows on the leathery back. Hoshick nestled closer.

Retief's air was running out. He heaved up against the smothering weight. Nothing budged.

It was like burial under a dump-truck-load of concrete.

He remembered the rangerform he had captured. The sensitive orifice had been placed ventrally, in what would be the thoracic area....

He groped, felt tough hide set with horny granules. He would be missing skin tomorrow ... if there was a tomorrow. His thumb found the orifice and probed.

The Flap-jack recoiled. Retief held fast, probed deeper, groping with the other hand. If the alien were bilaterally symmetrical there would be a set of ready made hand-holds....

* * * * *

There were.

Retief dug in and the Flap-jack writhed, pulled away. Retief held on, scrambled to his feet, threw his weight against the alien and fell on top of him, still gouging. Hoshick rippled his fringe wildly, flopped in terror, then went limp.

Retief relaxed, released his hold and got to his feet, breathing hard. Hoshick humped himself over onto his ventral side, lifted and moved gingerly over to the sidelines. His retainers came forward, assisted him into his trappings, strapped on the translator. He sighed heavily, adjusted the volume.

"There is much to be said for the old system," he said. "What a burden one's sportsmanship places on one at times."

"Great sport, wasn't it?" said Retief. "Now, I know you'll be eager to continue. If you'll just wait while I run back and fetch some of our gougerforms--"

"May hide-ticks devour the gougerforms!" Hoshick bellowed. "You've given me such a sprong-ache as I'll remember each spawning-time for a year."

"Speaking of hide-ticks," said Retief, "we've developed a biterform--"

"Enough!" Hoshick roared, so loudly that the translator bounced on his hide. "Suddenly I yearn for the crowded yellow sands of Jaq. I had hoped...." He broke off, drew a rasping breath. "I had hoped, Retief," he said, speaking sadly now, "to find a new land here where I might plan my own Mosaic, till these alien sands and bring forth such a crop

of paradise-lichen as should glut the markets of a hundred worlds. But my spirit is not equal to the prospect of biterforms and gougerforms without end. I am shamed before you...."

"To tell you the truth, I'm old-fashioned myself. I'd rather watch the action from a distance too."

"But surely your spawn-fellows would never condone such an attitude."

"My spawn-fellows aren't here. And besides, didn't I mention it? No one who's really in the know would think of engaging in competition by mere combat if there were any other way. Now, you mentioned tilling the sand, raising lichens--things like that--"

"That on which we dined but now," said Hoshick, "and from which the wine is made."

"The big news in fashionable diplomacy today is farming competition. Now, if you'd like to take these deserts and raise lichen, we'll promise to stick to the oases and vegetables."

Hoshick curled his back in attention. "Retief, you're quite serious? You would leave all the fair sand hills to us?"

"The whole works, Hoshick. I'll take the oases."

Hoshick rippled his fringes ecstatically. "Once again you have outdone me, Retief," he cried. "This time, in generosity."

"We'll talk over the details later. I'm sure we can establish a set of rules that will satisfy all parties. Now I've got to get back. I think some of the gougerforms are waiting to see me."

IV

It was nearly dawn when Retief gave the whistled signal he had agreed on with Potter, then rose and walked into the camp circle. Swazey stood up.

"There you are," he said. "We been wonderin' whether to go out after you."

Lemuel came forward, one eye black to the cheekbone. He held out a

raw-boned hand. "Sorry I jumped you, stranger. Tell you the truth, I thought you was some kind of stool-pigeon from the CDT."

Bert came up behind Lemuel. "How do you know he ain't, Lemuel?" he said. "Maybe he--"

Lemuel floored Bert with a backward sweep of his arm. "Next cotton-picker says some embassy Johnny can cool me gets worse'n that."

"Tell me," said Retief. "How are you boys fixed for wine?"

"Wine? Mister, we been livin' on stump water for a year now. 'Dobe's fatal to the kind of bacteria it takes to ferment likker."

"Try this." Retief handed over a sqat jug. Swazey drew the cork, sniffed, drank and passed it to Lemuel.

"Mister, where'd you get that?"

"The Flap-jacks make it. Here's another question for you: Would you concede a share in this planet to the Flap-jacks in return for a peace guarantee?"

At the end of a half hour of heated debate Lemuel turned to Retief. "We'll make any reasonable deal," he said. "I guess they got as much right here as we have. I think we'd agree to a fifty-fifty split. That'd give about a hundred and fifty oases to each side."

"What would you say to keeping all the oases and giving them the desert?"

Lemuel reached for the wine jug, eyes on Retief. "Keep talkin', mister," he said. "I think you got yourself a deal."

* * * * *

Consul Passwyn glanced up at Retief, went on perusing a paper.

"Sit down, Retief," he said absently. "I thought you were over on Pueblo, or Mud-flat, or whatever they call that desert."

"I'm back."

Passwyn eyed him sharply. "Well, well, what is it you need, man? Speak

up. Don't expect me to request any military assistance, no matter how things are...."

Retief passed a bundle of documents across the desk. "Here's the Treaty. And a Mutual Assistance Pact declaration and a trade agreement."

"Eh?" Passwyn picked up the papers, riffled through them. He leaned back in his chair, beamed.

"Well, Retief. Expeditiously handled." He stopped, blinked at Retief. "You seem to have a bruise on your jaw. I hope you've been conducting yourself as befits a member of the Embassy staff."

"I attended a sporting event," Retief said. "One of the players got a little excited."

"Well ... it's one of the hazards of the profession. One must pretend an interest in such matters." Passwyn rose, extended a hand. "You've done well, my boy. Let this teach you the value of following instructions to the letter."

Outside, by the hall incinerator drop, Retief paused long enough to take from his briefcase a large buff envelope, still sealed, and drop it in the slot.

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The Feeling, by Roger Dee

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If this story holds true in real
practice, it may reveal something
about us that we've never known.

"We're just starting on the first one--Walraven, ship's communications man," Costain said, low-voiced. "Captain Maxon and Vaughn have called in. There's been no word from Ragan."

Coordinator Erwin took his seat beside the psychologist, his bearing as militarily authoritative in spite of civilian clothing as the room's air was medical.

"Maybe Ragan won't turn up," Erwin said. "Maybe we've still got a man out there to bring the ship back."

Costain made a quieting gesture, his eyes on the three-man psych team grouped about Walraven's wheeled reclining chair. "They've given Walraven a light somnolent. Not enough to put him out, just enough to make him relive the flight in detail. Accurately."

The lead psych man killed the room's lighting to a glow. "Lieutenant Walraven, the ship is ready. You are at your post, with Captain Maxon and Lieutenants Vaughn and Ragan. The first Mars flight is about to blast off. How do you feel?"

Walraven lay utterly relaxed, his face dreaming. His voice had the waning sound of a tape running down for lack of power.

"Jumpy," he said. "But not really afraid. We're too well conditioned for that, I guess. This is a big thing, an important thing. Exciting."

* * * * *

It had been exciting at first. The long preparation over, training and study and news interviews and final parties all dreamlike and part of the past. Outside now, invisible but hearteningly present beyond the ship's impermeable hull, the essential and privileged people waiting to see them off. The ship's power plant was humming gently like a giant, patient cat.

Captain Maxon passed out muscle-relaxant capsules. The total boneless relaxation that was their defense against acceleration came quickly.

The ship was two hours out, beyond lunar orbit and still accelerating, when, trained for months against the moment, set each about his task. Readings occupied Maxon and Vaughn and Ragan while Walraven checked his communications and telemetering gear.

It was not until the transmitter slot had licked up its first coded tape--no plain text here, security before even safety--and reported all well, the predicted borne out, that they became aware of the Feeling.

The four of them sat in their unsqueaking gimbaled seats and looked at each other, sharing the Feeling and knowing that they shared it, but not why. Vaughn, who was given to poetry and some degree of soul-searching, made the first open recognition.

"There's something wrong," he said.

The others agreed and, agreeing, could add nothing of explanation to the wrongness. Time passed while they sat, seeing within themselves for the answer--and if not for answer, at least for identification--but nothing came and nothing changed except that with time the steady pressure of the Feeling grew stronger.

Vaughn, again, was first to react to the pressure. "We've got to do something." He twisted out of his seat and wavered in the small pseudogravity of the ship's continuing acceleration. "I've never in my life felt so desolate, so--"

He stopped. "There aren't any words," he said helplessly.

Less articulate than Vaughn and knowing it, the others did not try to help find the words. Only Ragan, professional soldier without family or close tie anywhere in the world, had a suggestion.

"The ship's power plant is partly psionic," Ragan said. "I don't understand the principle, but it's been drilled into us that no other system can give a one-directional thrust without reaction. The psi-drive is tied into our minds in the same way it's tied into the atomic and electronic components. It's part of us and we're part of it."

Even Maxon, crew authority on the combination drive, missed his meaning at first.

"If our atomic shielding fails," Ragan explained, "we're irradiated. If our psionics bank fails, we may feel anything. Maybe the trouble is there."

Privately they disagreed, certain that nothing so disquieting as the Feeling that weighted them down could be induced even by so cryptic a

marriage of dissimilar principles as made up the ship's power plant. Still it was a possible avenue of relief.

"It's worth trying," Maxon said, and they checked.

And checked, and checked.

* * * * *

"We worked for hours," Walraven said, "but nothing came of it. None of us, even Maxon, knew enough about the psi-drive to be sure, but we ended up certain that the trouble wasn't there. It was in us."

The drug was wearing thin, leaving him pale and shaken. His face had a glisten of sweat under the lowered lights.

The lead psych man chose a hypodermic needle, looked to Erwin and Costain for authority, and administered a second injection.

"You gave up searching," he said. "What then, Lieutenant?"

"We waited," Walraven said.

He relaxed, his face smoothing to impersonal detachment as his mind slipped back to the ship and its crew. Watching, Costain felt a sudden deep unease as if the man's mind had really winged back through time and space and carried a part of his own with it.

"There was only one more possible check," Walraven said. "We had to wait two days for that."

The check was Maxon's idea, simple of execution and unarguable of result. At halfway point acceleration must cease, the ship rotate on its gyros and deceleration set in. There would be a period of waiting when the power plant must be shut off completely.

If the Feeling stemmed from the psi-drive, it would lift then.

It did not lift. They sat weightless and disoriented while the gyros precessed and the ship swung end by end and the steady pressure of the Feeling mounted up and up without relief.

"It gets worse every hour," Vaughn said raggedly.

"It's not a matter of time," Maxon said. "It's the distance. The Feeling grows stronger as we get farther from home."

They sat for another time without talk, feeling the distance build up behind them and sensing through the unwindowed hull of the ship what the emptiness outside must be like. The ship was no longer an armored projectile bearing them snugly and swiftly to a first planetfall. It was a walnut shell without strength or direction.

In the end they talked out their problem because there was nothing else they could do.

"We're men," Maxon said, not as if he must convince himself but as if it were a premise that had to be made, a starting point for all logic. "We're reasoning creatures. If the trouble lies in ourselves we can find its source and its reason for being."

He picked Vaughn first because Vaughn had been first to sense the wrongness and because the most sensitive link in a chain is also predictably its weakest.

"Try," Maxon said. "I know there are no words to describe this thing, but get as close as you can."

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Vaughn tried. "It isn't home-sickness. It's a different thing altogether from nostalgia. It's not just fear. I'm afraid--not of any _thing_, just afraid in the way a child is afraid of falling in his dreams, when he's really had no experience with falling because he's never fallen more than a few inches in his life.... When I think of my wife, it's not the same at all as if I were just in some far corner of the Earth with only land and water between us. Even if I were marooned on an uncharted island somewhere with no hope of seeing home again, I wouldn't feel this way. There wouldn't be this awful _pulling_."

Ragan agreed with Vaughn that the Feeling was essentially a _pull_, but beyond agreement could add nothing. Ragan had covered the world without forming a tie to hold him; one place was as good as another and he felt no loss for any particular spot on Earth.

"I only want to be back there," he said simply. "Anywhere but here."

"I was born on a farm in New England," Walraven said. "Out of the land,

like my father and his people before him. I'm part of that land, no matter how far from it I go, because everything I am came from it. I feel uprooted. I don't belong here."

Uprooted was the key for which they had hunted.

Maxon said slowly, "There are wild animals on Earth that can't live away from their natural homes. Insects--how does a termite feel, cut off from its hive? Maybe that's our trouble. Something bigger than individual men made the human race what it is. Maybe we've been a sort of composite being all along, without knowing it, tied together by the need of each other and not able to exist apart. Maybe no one knew it before because no one was ever isolated in the way we are."

Walraven had more to say, almost defiant in his earnestness. "This is going to sound wild, but I've been fighting inside myself ever since Vaughn mentioned being pulled toward home. I have the feeling that if I'd only let go, I'd be back where I belong." He snapped his fingers, the sound loud in the room. "Like that."

No one laughed because each found in himself the same conviction waiting to be recognized. Ragan said, "Walraven's right. There's no place on Earth I care for more than another, but I feel I could be back there in any one of them"--he snapped his fingers, as Walraven had done--"as quickly as that."

"I know," Maxon said. "But we can't let go. We were sent out to put this ship into orbit around Mars. We've got to take her there."

* * * * *

Walraven said, "It wasn't easy. The Feeling got worse as we went out and out. Knowing what it was helped a little, but not enough. We held onto each other, the four of us, to keep the group together. We _knew_ what would happen if we let go."

The head psych man looked to Costain and put his needle away when Costain shook his head.

"The ship," Coordinator Erwin said sharply. "Walraven, you did put her into orbit?"

"Yes," Walraven said. "We put her into orbit and turned on the telemetering equipment--they'll be picking up her signals by now--and

then we turned our backs on each other and we let go. There wasn't any feeling of motion or speed, but I felt a fresh breeze on my face and when I opened my eyes I was standing beside a familiar stone fence on a hill above the house where I was born. You haven't told me, but the others came back, too, didn't they?"

"All but Ragan," Erwin said. His tone made Costain think wryly, _Even the military can snatch at straws_. "Maxon and Vaughn called in. But we haven't heard from Ragan."

"He wasn't left behind," Walraven said with certainty. "Ragan has no family, but he has a home. We're standing on it."

An orderly came in with an envelope for Costain, who opened it and handed the paper to Erwin. To Walraven, Costain said, "It's a cablegram from North Ireland. Ragan is back."

Erwin was still gripping the paper in his hand when he walked with Costain out of the hospital into the bright airiness of a spring day. He glared at the warm, blue sky.

"We'll find a way," Erwin said. "We've proved that we can put men on Mars. With the right conditioning, we can keep them there."

"You're a dedicated and resolute man, Coordinator," Costain said. "Do you really suppose that any amount of conditioning could fit you to do what those boys failed at?"

The long moment of considering that passed before Erwin answered left a fine sheen of sweat on his face.

"No," Erwin said.

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Don Channing stood back and admired his latest acquisition with all of the fervency of a high school girl inspecting her first party dress. It was so apparent, this affection between man and gadget, that the workmen who were now carrying off the remnants of the packing case did so from the far side of the bench so that they would not come between the director of communications and the object of his affection. So intent was Channing in his adoration of the object that he did not hear the door open, nor the click of high heels against the plastic flooring. He was completely unaware of his surroundings until Arden said:

"Don, what off earth is that?"

"Ain't she a beaut?" breathed Channing.

"Jilted for a jimcrank," groaned Arden. "Tell me, my quondam husband, what is it?"

"Huh?" asked Don, coming to life once more.

"In plain, unvarnished words of one cylinder, what is that ... that, _that_?"

"Oh, you mean the transmission tube?"

"How do you do?" said Arden to the big tube. "Funny-looking thing, not like any transmitting tube I've ever seen before."

"Not a transmitting tube," explained Channing. "It is one of those power transmission tubes that Baler and Carroll found on the Martian desert."

"I presume that is why the etch says: 'Made by Terran Electric, Chicago'?"

Channing laughed. "Not one found--there was only one found. This is a carbon copy. They are going to revolutionize the transmission of power with 'em."

"Funny-looking gadget."

"Not so funny. Just alien."

"Know anything about it?"

"Not too much. But I've got Barney Carroll coming out here and a couple of guys from Terran Electric. I'm going to strain myself to keep from tinkering with the thing until they get here."

"Can't you go ahead? It's not like you to wait."

"I know," said Channing. "But the Terran Electric boys have sewed up the rights to this dinkus so tight that it is squeaking. Seems to be some objection to working on them in the absence of their men."

"Why?"

"Probably because Terran Electric knows a good thing when they see it. Barney's latest 'gram said that they were very reluctant to rent this tube to us. Legally they couldn't refuse, but they know darned well that we're not going to run power in here from Terra--or anywhere else. They know we want it for experimentation, and they feel that it is their tube and that if any experimentation is going to take place, they're going to do it."

The workmen returned with two smaller cases; one of each they placed on benches to either side of the big tube. They knocked the boxes apart and there emerged two smaller editions of the center tube--and even Arden could see that these two were quite like the forward half and the latter half, respectively, of the larger tube.

"Did you buy 'em out?" she asked.

"No," said Don simply. "This merely makes a complete circuit."

"Explain that one, please."

"Sure. This one on the left is the input-terminal tube which they call the power-end. The good old D. C. goes in across these two terminals. It emerges from the big end, here, and bats across in a beam of intangible something-or-other until it gets to the relay tube where it is once more tossed across to the load-end tube. The power is taken from these terminals on the back end of the load-end tube and is then suitable for running motors, refrigerators, and so on. The total line-loss is slightly more than the old-fashioned transmission line. The cathode-dynode requires replacement about once a year. The

advantages over high-tension wires are many; in spite of the slightly higher line-losses and the replacement trick, they are replacing long-lines everywhere.

"When they're properly aligned, they will scat right through a mountain of solid iron without attenuation. It takes one tower every hundred and seventy miles, and the only restriction on tower height is that the tube must be above ground by ten to one the distance that could be flashed over under high intensity ultraviolet light."

"That isn't clear to me."

"Well, high-tension juice will flash over better under ultraviolet illumination. The tube must be high enough to exceed this distance by ten to one at the operating voltage of the stuff down the line. Another thing, the darned beam can be made to curve by adjusting the beam plates in the tube. The boys in the Palanortis Jungles say they're a godsend, since there are a lot of places where the high-tension towers would be impossible since the Palanortis Whitewood grows about a thousand feet tall."

"You'd cut a lot of wood to ream a path through from Northern Landing to the power station on the Boiling River," said Arden.

"Yeah," drawled Don, "and towers a couple of hundred miles apart are better than two thousand feet. Yeah, these things are the nuts for getting power shipped across country."

"Couldn't we squirt it out from Terra?" asked Arden. "That would take the curse off of our operating expenses."

"It sure would," agreed Channing heartily. "But think of the trouble in aligning a beam of that distance. I don't know--there's this two hundred mile restriction, you know. They don't transmit worth a hoot over that distance, and it would be utterly impossible to maintain stations in space a couple of hundred miles apart, even from Venus, from which we maintain a fairly close tolerance. We might try a hooting big one, but the trouble is that misalignment of the things results in terrible effects."

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The door opened and Charley Thomas and Walt Franks entered.

"How's our playthings?" asked Walt.

"Cockeyed looking gadgets," commented Charley.

"Take a good look at 'em," said Channing. "Might make some working X-ray plates, too. It was a lucky day that these got here before the boys from Terran Electric. I doubt that they'd permit that."

"O.K.," said Charley. "I'll bring the X-ray up here and make some pix. You'll want working prints; Walton will have to take 'em and hang dimensions on to fit."

"And we," said Channing to Walt Franks, "will go to our respective offices and wait until the Terran Electric representatives get here."

The ship that came with the tubes took off from the landing stage, and as it passed their observation dome, it caught Don's eye. "There goes our project for the week," he said.

"Huh?" asked Walt.

"He's been like that ever since we tracked him down with the _Relay Girl_," said Arden.

"I mean the detection of driver radiation," said Channing.

"Project for the week?" asked Walt. "Brother, we've been tinkering with that idea for months, now."

"Well," said Don, "there goes four drivers, all batting out umpty-ump begawatts of something. They can hang a couple of G on a six-hundred foot hull for hours and hours. The radiation they emit must be detectable; don't tell me that such power is not."

"The interplanetary companies have been tinkering with drivers for years and years," said Walt. "They have never detected it?"

"Could be, but there are a couple of facts that I'd like to point out. One is that they're not interested in detection. They only want the best in driver efficiency. Another thing is that the radiation from the drivers is sufficient to ionize atmosphere into a dull red glow that persists for several minutes. Next item is the fact that we on Venus Equilateral should be able to invent a detector; we've been tinkering with detectors long enough. Oh, I'll admit that it is

secondary-electronics--"

"Huh? That's a new one on me."

"It isn't electronics," said Channing. "It's subetheric or something like that. We'll call it sub-electronics for lack of anything else. But we should be able to detect it somehow."

"Suppose there is nothing to detect?"

"That smacks of one hundred percent efficiency," laughed Don. "Impossible."

"How about an electric heater?" asked Arden.

"Oh Lord, Arden, an electric heater is the most ineffic--"

"Is it?" interrupted Arden with a smile. "What happens to radiation when intercepted?"

"Turns to heat, of course."

"That takes care of the radiation output," said Arden. "Now, how about electrical losses?"

"Also heat."

"Then everything that goes into an electric heater emerges as heat," said Arden.

"I get it," laughed Walt. "Efficiency depends upon what you hope to get. If what you're wanting is losses, anything that is a total loss is one hundred percent efficient. Set your machine up to waste power and it becomes one hundred percent efficient as long as there is nothing coming from the machine that doesn't count as waste."

"Fine point for argument," smiled Channing. "But anything that will make atmosphere glow that dull red after the passage of a ship will have enough waste to detect. Don't tell me that the red glow enhances the drive."

The door opened again and Charley came in with a crew of men. They ignored the three, and started to hang heavy cloth around the walls and ceiling. Charley watched the installation of the barrier-cloth and then

said: "Beat it--if you want any young Channings!"

Arden, at least, had the grace to blush.

* * * * *

The tall, slender man handed Don an envelope full of credentials. "I'm Wesley Farrell," he said. "Glad to have a chance to work out here with you fellows."

"Glad to have you," said Don. He looked at the other man.

"This is Mark Kingman."

"How do you do?" said Channing. Kingman did not impress Channing as being a person whose presence in a gathering would be demanded with gracious shouts of glee.

"Mr. Kingman is an attorney for Terran Electric," explained Wesley.

Kingman's pedestal was lowered by Channing.

"My purpose," said Kingman, "is to represent my company's interest in the transmission tube."

"In what way?" asked Don.

"Messrs. Baler and Carroll sold their discovery to Terran Electric outright. We have an iron-bound patent on the device and/or any developments of the device. We hold absolute control over the transmission tube, and therefore may dictate all terms on which it is to be used."

"I understand. You know, of course, that our interest in the transmission tube is purely academic."

"I have been told that. We're not too certain that we approve. Our laboratories are capable of any investigation you may desire, and we prefer that such investigations be conducted under our supervision."

"We are not going to encroach on your power rights," explained Channing.

"Naturally," said Kingman in a parsimonious manner. "But should you develop a new use for the device, we shall have to demand that we have

complete rights."

"Isn't that a bit high-handed?" asked Don.

"We think not. It is our right."

"You're trained technically?" asked Don.

"Not at all. I am a lawyer, not an engineer. Mr. Farrell will take care of the technical aspects of the device."

"And in looking out for your interests, what will you require?"

"Daily reports from your group. Daily conferences with your legal department. These reports should be prepared prior to the day's work so that I may discuss with the legal department the right of Terran Electric to permit or to disapprove the acts."

"You understand that there may be a lot of times when something discovered at ten o'clock may change the entire program by ten oh six?"

"That may be," said Kingman, "but my original statements must be adhered to, otherwise I am authorized to remove the devices from your possession. I will go this far, however; if you discover something that will change your program for the day, I will then call an immediate conference which should hurry your program instead of waiting until the following morning for the decision."

"Thanks," said Channing dryly. "First, may we take X-ray prints of the devices?"

"No. Terran Electric will furnish you with blueprints which we consider suitable." Kingman paused for a moment. "I shall expect the complete program of tomorrow's experiments by five o'clock this evening."

Kingman left, and Wes Farrell smiled uncertainly. "Shall we begin making the list?"

"Might as well," said Channing. "But, how do you lay out a complete experimental program for twelve hours ahead?"

"It's a new one on me, too," said Farrell.

"Well, come on. I'll get Walt Franks, and we'll begin."

"I wonder if it might not be desirable for Kingman to sit in on these program-settings?" said Channing, after a moment of staring at the page before him.

"I suggested that to him. He said 'No'. He prefers his information in writing."

Walt came in on the last words. Channing brought Franks up to date and Walt said: "But why would he want a written program if he's going to disallow certain ideas?"

"Sounds to me like he's perfectly willing to let us suggest certain lines of endeavor; he may decide that they look good enough to have the Terran Electric labs try themselves," said Channing.

Wes Farrell looked uncomfortable.

"I have half a notion to toss him out," Channing told Farrell. "I also have half a notion to make miniatures of this tube and go ahead and work regardless of Kingman or Terran Electric. O.K., Wes, we won't do anything illegal. We'll begin by making our list."

"What is your intention?" asked Wes.

"We hope that these tubes will enable us to detect driver radiation, which will ultimately permit us to open ship-to-ship two-way communication."

"May I ask how you hope to do this?"

"Sure. We're going to cut and try. No one knows a thing about the level of driver-energy; we've assigned a selected name for it: Subelectronics. The driver tube is akin to this transmission tube, if what I've been able to collect on the subject is authentic. By using the transmission tube--"

"Your belief is interesting. I've failed to see any connection between our tube and the driver tube."

"Oh sure," said Channing expansively. "I'll admit that the similarity is of the same order as the similarity between an incandescent lamp and a ten dynode, electron-multiplier such as we use in our final beam stages. But recall this business of the cathode-dynode. In both, the

emitting surface is bombarded by electrons from electron guns. They both require changing."

"I know that, but the driver cathode disintegrates at a rate of loss that is terrific compared to the loss of emitting surface in the transmission tube."

"The driver cathode is worth about two hundred G-hours. But remember, there is no input to the driver such as you have in the transmission tube. The power from the driver comes from the disintegration of the cathode surface--there isn't a ten thousandth of an inch of plating on the inside of the tube to show where it went. But the transmission tube has an input and the tube itself merely transduces this power to some level of radiation for transmission. It is re-transduced again for use. But the thing is this: Your tube is the only thing we know of that will accept subelectronic energy and use it. If the driver and the transmission tubes are similar in operational spectrum, we may be able to detect driver radiation by some modification."

"That sounds interesting," said Wes. "I'll be darned glad to give you a lift."

"Isn't that beyond your job?" asked Channing.

"Yeah," drawled Farrell, "but could you stand by and watch me work on a beam transmitter?"

"No--"

"Then don't expect me to watch without getting my fingers dirty," said Farrell cheerfully. "Sitting around in a place like this would drive me nuts without something to do."

"O.K., then," smiled Don. "We'll start off by building about a dozen miniatures. We'll make 'em about six inches long--we're not going to handle much power, you know. That's first."

Kingman viewed the list with distaste. "There are a number of items here which I may not allow," he said.

"For instance?" asked Channing with lifted eyebrows.

"One, the manufacture or fabrication of power transmission tubes by anyone except Terran Electric is forbidden. Two, your purpose in

wanting to make tubes is not clearly set forth. Three, the circuits in which you intend to use these tubes is unorthodox, and must be clearly and fully drawn and listed."

"Oh spinach! How can we list and draw a circuit that is still in the embryonic stage?"

"Then clarify it. Until then I shall withhold permission."

"But look, Mr. Kingman, we're going to develop this circuit as we go along."

"You mean that you are going to fumble your way through this investigation?"

"We do not consider a cut-and-try program as fumbling," said Walt Franks.

"I am beginning to believe that your research department has not the ability to reduce your problems to a precise science," said Kingman scornfully.

"Name me a precise science," snapped Channing, "or even a precise art!"

"The legal trade is as precise as any. Everything we do is done according to legal precedent."

"I see. And when there is no precedent?"

"Then we all decide upon the proper course, and establish a precedent."

"But I've got to show you a complete circuit before you'll permit me to go ahead?"

"That's not all. Your program must not include reproducing these tubes either in miniature or full size--or larger. Give me your requirements and I shall request Terran Electric to perform the fabrication--"

"Look, Kingman, Venus Equilateral has facilities to build as good a tube as Terran Electric. I might even say better, since our business includes the use, maintenance, and development of radio tubes; your tubes are not too different from ours. Plus the fact that we can whack out six in one day, whilst it will take seventy-three hours to get 'em here after they're built on Terra."

"I'm sorry, but the legal meaning of the patent is clear. Where is your legal department?"

"We have three. One on each of the Inner Planets."

"I'll request you to have a legal representative come to the Station so that I may confer with him. One with power of attorney to act for you."

"Sorry," said Channing coldly. "I wouldn't permit any attorney to act without my supervision."

"That's rather a backward attitude," said Kingman. "I shall still insist on conducting my business with one of legal mind."

"O.K. We'll have Peterman come out from Terra. But he'll still be under my supervision."

"As you wish. I may still exert my prerogative and remove the tubes from your possession."

"You may find that hard to do," said Channing.

"That's illegal!"

"Oh no, it won't be. You may enter the laboratory at any time and remove the tubes. Of course, if you are without technical training you may find it most difficult to disconnect the tubes without getting across a few thousand volts. That might be uncomfortable."

"Are you threatening me?" said Kingman, bristling. His stocky frame didn't take to bristling very well, and he lost considerable prestige in the act.

"Not at all. I'm just issuing a fair warning that the signs that say: DANGER! HIGH VOLTAGE! are not there for appearance."

"Sounds like a threat to me."

"Have I threatened you? It sounds to me as though I were more than anxious for your welfare. Any threat of which you speak is utterly without grounds, and is a figment of your imagination; based upon distrust of the Interplanetary Communications Company, and the personnel of the Venus Equilateral Relay Station."

Kingman shut up. He went down the list, marking off items here and there. While he was marking, Channing scribbled a circuit and listed the parts. He handed it over as Kingman finished.

"This is your circuit?" asked the lawyer skeptically.

"Yes."

"I shall have to ask for an explanation of the symbols involved."

"I shall be happy to present you with a book on essential radio technique," offered Channing. "A perusal of which will place you in possession of considerable knowledge. Will that suffice?"

"I believe so. I can not understand how; being uncertain of your steps a few minutes ago, you are now presenting me with a circuit of your intended experiment."

"The circuit is, of course, merely symbolic. We shall change many of the constants before the day is over--in fact, we may even change the circuit."

"IT shall require a notice before each change so that I may pass upon the legal aspects."

"Walt," said Don, "will you accompany me to a transparency experiment on the Ninth Level?"

"Be more than glad to," said Walt. "Let's go!"

They left the office quickly, and started for Joe's. They had not reached the combined liquor-vending and restaurant establishment when the communicator called for Channing. It was announcing the arrival of Barney Carroll, so instead of heading for Joe's, they went to the landing stage at the south end of the Station to greet the visitor.

* * * * *

"Barney," said Don, "of all the companies, why did you pick on Terran Electric?"

"Gave us the best deal," said the huge, grinning man.

"Yeah, and they're getting the best of my goat right now."

"Well, Jim and I couldn't handle anything as big as the power transmission set-up. They paid out a large slice of jack for the complete rights. All of us are well paid now. After all, I'm primarily interested in Martian artifacts, you know."

"I wonder if they had lawyers," smiled Walt wryly.

"Probably. And, no doubt, the legals had a lot to do with the fall of the Martian Civilization."

"As it will probably get this one so bound up with red tape that progress will be impossible--or impractical."

"Well, Barney, let's take a run up to the lab. We can make paper-talk even if Brother Kingman won't let us set it to soldering iron. There are a lot of things I want to ask you about the tube."

They sat around a drawing table and Channing began to sketch. "What I'd hoped to do is this," he said, drawing a schematic diagram. "We're not interested in power transmission, but your gadget will do a bit of voltage amplification because of its utter indifference to the power-line problem of impedance matching. We can take a relay tube and put in ten watts, say, across ten thousand ohms. That means the input will be somewhat above three hundred volts. Now, if our output is raced across a hundred thousand ohms, ten watts will give us one thousand volts. So we can get voltage amplification at the expense of current--which we will not need. Unfortunately, the relay tube as well as the rest of the system will give out with the same kind of power that it is impressed with--so we'll have amplification of driver radiation. Then we'll need a detector. We haven't been able to get either yet, but this is a start, providing that Terran Electric will permit us to take a deep breath without wanting to pass on it."

"I think you may be able to get amplification," said Barney. "But to do it, you'll have to detect it first."

"Huh?"

"Sure. Before these darned things will work, this in-phase anode must be right on the beam. That means that you'll require a feed-back circuit from the final stage to feed the in-phase anodes. Could be done without detection, I suppose."

"Well, for one thing, we're going to get some amplification if we change the primary anode--so. That won't permit the thing to handle any power, but it will isolate the output from the input and permit more amplification. Follow?"

"Can we try it?"

"As soon as I get Terran Electric's permission."

"Here we go again!" groaned Walt.

"Yeah," said Don to Barney, "now you'll see the kind of birds you sold your gadget to."

They found Kingman and Farrell in conference. Channing offered his suggestion immediately, and Kingman looked it over, shaking his head.

"It is not permitted to alter, change, rework, or repair tubes owned by Terran Electric," he said.

"What are we permitted to do?" asked Channing.

"Give me your recommendation and I shall have the shop at Terran Electric perform the operation."

"At cost?"

"Cost plus a slight profit. Terran Electric, just as Communications, is not in business from an altruistic standpoint."

"I see."

"Also," said Kingman severely, "I noticed one of your men changing the circuit slightly without permission. Why?"

"Who was it?"

"The man known as Thomas."

"Charley Thomas is in charge of development work," said Channing. "He probably noticed some slight effect that he wanted to check."

"He should have notified me first--I don't care how minute the change.

I must pass on changes first."

"But you wouldn't know their worth," objected Barney.

"No, but Mr. Farrell does, and will so advise me."

Wes looked at Channing. "Have you been to the Ninth Level yet?"

"Nope," said Channing.

"May I accompany you?"

Channing looked at Farrell critically. The Terran Electric engineer seemed sincere, and the pained expression on his face looked like frustrated sympathy to Don. "Come along," he said.

* * * * *

Barney smiled cheerfully at the sign on Joe's door. "That's a good one, 'Best Bar in Twenty-seven Million Miles, Minimum!' What's the qualification for?"

"That's about as close as Terra gets. Most of the time the nearest bar is at Northern Landing, Venus; sixty-seven million miles from here. Come on in and we'll get plastered."

Farrell said: "Look, fellows, I know how you feel. They didn't tell me that you weren't going to be given permission to work. I understood that I was to sort of walk along, offer suggestions, and sort of prepare myself to take over some research myself. This is sickening."

"I think you mean that."

"May I use your telephone. I want to resign."

"Wait a minute. If you're that sincere, why don't we outguess 'em?"

"Could do," said Wes. "How?"

"Is there any reason why we can't take a poke to Sol himself?"

"You mean haul power out of the sun?"

"That's the general idea. Barney, what do you think?"

"Could be--but it would take a redesign."

"Fine. And may we pray that the redesign is good enough to make a difference to the Interplanetary Patent Office." Channing called Joe. "The same. Three Moons all around. Scotch," he explained to the others, "synthesized in the Palanortis Country."

"Our favorite import," said Walt.

Joe grinned. "Another tablecloth session in progress?"

"Could be. As soon as we oil the think-tank, we'll know for sure."

"What does he mean?" asked Barney.

Joe smiled. "They all have laboratories and draftsmen and textbooks," he said. "But for real engineering, they use my tablecloths. Three more problems and I'll have a complete tablecloth course in astrophysics, with a sideling in cartooning, and a minor degree in mechanical engineering."

"Oh?"

"Sure. Give 'em free hand, and a couple of your tubes and a tablecloth and they'll have 'em frying eggs by morning. When I came out here, they demanded a commercial bond and I thought they were nuts. Who ever heard of making a restaurateur post a bond? I discovered that all of their inventions are initially tinkered out right here in the dining room--I could steal 'em blind if I were dishonest!" Joe smiled hugely. "This is the only place in the system where the tablecloths have been through blueprint machines. That," he said confidentially to Barney, "is why some of the stuff is slightly garbled. Scotch mixed with the drawings. They have the cloths inspected by the engineering department before they're laundered; I lose a lot of tablecloths that way."

Joe left cheerfully amid laughter.

The Three Moons came next, and then Don began to sketch. "Suppose we make a driver tube like this," he said. "And we couple the top end, where the cathode is to the input side of the relay tube. Only the input side will require a variable-impedance anode, coupled back from the cathode to limit the input to the required value. Then the coupling anodes must be served with an automatic-coupling circuit so that the

limiting power is passed without wastage."

Barney pulled out a pencil. "If you make that automatic-coupling circuit dependent upon the output from the terminal ends," he said, "it will accept only the amount of input that is required by the power being used from the output. Over-cooling these two anodes will inhibit the power-intake."

"Right," said Wes. "And I am of the opinion that the power available from Sol is of a magnitude that will permit operation over and above the limit."

"Four million tons of energy per second!" exploded Walt. "That's playing with fire!"

"You bet. We'll fix 'em with that!"

"Our experience with relay tubes," said Farrell slowly, "indicates that some increase in range is possible with additional anode-focusing. Build your tube-top with an extra set of anodes, and that'll give us better control of the beam."

"We're getting farther and farther from the subject of communication," said Channing with a smile. "But I think that we'll get more out of this."

"How so?"

"Until we get a chance to tinker with those tubes, we won't get ship-to-ship two ways. So we'll gadgeteer up something that will make Terran Electric foam at the mouth, and swap a hunk of it for full freedom in our investigations. Or should we bust Terran Electric wholeheartedly?"

"Let's slug 'em," said Walt.

"Go ahead," said Wes. "I'm utterly disgusted, though I think our trouble is due to the management of Terran Electric. They like legal tangles too much."

"We'll give 'em a legal tangle," said Barney. He was adding circuits to the tablecloth sketch.

* * * * *

Channing, on his side, was sketching in some equations, and Walt was working out some mechanical details. Joe came over, looked at the tablecloth, and forthright went to the telephone and called Walton. The mechanical designer came, and Channing looked up in surprise. "Hi," he said. "I was about to call you."

"Joe did."

"O.K. Look, Ted, can you fake us up a gadget like this?"

Walton looked the thing over. "Give me about ten hours," he said.

"We've got a spare turnover driver from the _Relay Girl_ that we can hand-carve. There are a couple of water-boilers that we can strip, cut open, and make to serve as the top end. How're you hoping to maintain the vacuum?"

"Yes," said Wes Farrell, "That's going to be the problem. If there's any adjusting of electrodes to do, this'll take months."

"That's why we, on Venus Equilateral, are ahead of the whole ding-busted solar system in tube development," said Don. "We'll run the thing out in the open--and I _do_ mean open! Instead of the tube having the insides exhausted, the operators will have their envelopes served with fresh, canned air."

"Like a cartoon I saw somewhere," grinned Walt. "Had a bird in full armor tinkering with a radio set. The caption was: 'Why shield the set!'"

"Phooey," said Ted Walton, "Look, Tom Swift, is this another one of the Franks' brainchildren?"

"Tom Swift?" asked Wes.

"Yeah. That's the nom de plume he invents under. The other guy we call Captain Lightning."

"Oh?" asked Farrell, "Do you read him, too?"

"Sure," grinned Walton. "And say, speaking of comics, I came upon an old, old volume of Webster's International Dictionary in a rare-edition library a couple of months ago in Chicago, and they define 'Comic' as

amusing, funny, and ludicrous; not imaginative fiction. How things change."

"They do."

"But to get back to this gold-berg, what is it?"

"Ted," said Channing soberly, "sit down!" Walton did. "Now," grinned Channing, "this screwball gadget is an idea whereby we hope to draw power out of the sun."

Walton swallowed once, and then waved for Joe. "Double," he told the restaurateur. Then to the others he said, "Thanks for seating me. I'm ill, I think. Hearing things. I could swear I heard someone say that this thing is to take power from Sol."

"That's it."

"Um-m-m. Remind me to quit Saturday. This is no job for a man beset by hallucinations."

"You grinning idiot, we're not fooling."

"Then you'd better quit," Walton told Don. "This is no job for a bird with delusions of grandeur, either. Look, Don, you'll want this in the experimental blister at South end? On a coupler to the beam-turret so that it'll maintain direction at Sol?"

"Right. Couple it to the rotating stage if you can. Remember, that's three miles from the South end."

"We've still got a few high-power selsyns," said Walton, making some notations of his own on the tablecloth. "And thanks to the guys who laid out this Station some years ago, we've plenty of unused circuits from one end to the other. We'll couple it, all right. Oh mother. Seems to me like you got a long way off of your intended subject. Didn't you start out to make a detector for driver radiation?"

"Yup."

"And you end up tapping the sun. D'ye think it'll ever replace slave labor?"

"Could be. Might even replace the coal mine. That's to be seen. Have

any idea of how long you'll be?"

"Make it ten hours. I'll get the whole crew on it at once."

"Fine."

"But look. What's the reason for this change in program?"

"That's easy," said Don. "First, we had a jam session. Second, we've come to the conclusion that the longest way around is often the shortest way home. We're now in the throes of building something with which to dazzle the bright-minded management of Terran Electric and thus make them susceptible to our charm. We want a free hand at the transmission tubes, and this looks like a fair bit of bait."

"I get it. Quote: 'Why buy power from Terran Electric? Hang a Channing Power Beam on your chimney pot and tap the sun!' Whoa, Maizie. Bring on the needle, Watson. Hang out the flags, fire the cannon, ring the bells; for Venus Equilateral is about to hang a pipeline right into four million tons of energy per second! Don, that's a right, smart bit of power to doodle with. Can you handle it?"

"Sure," said Channing with a wave of his hand, "we'll hang a fuse in the line!"

"O.K.," said Walton, sweeping the tablecloth off the table like Mysto, the Magician; right out from under the glasses, "I'll be back--wearing my asbestos pants!"

Wes Farrell looked dreamily at the ceiling. "This _is_ a screwy joint," he said idly. "What do we do for the next ten hours?"

"Red Herring stuff," said Channing with what he hoped was a Machiavellian leer.

"Such as?"

"Making wise moves with the transmission tubes. Glomming the barrister's desk with proposed ideas for his approval; as many as we can think of so that he'll be kept busy. We might even think of something that may work, meanwhile. Come, fellow conspirators, to horse!" Channing picked up his glass and drained it, making a wry face. "Rotten stuff--I wish I had a barrel of it!"

Channing surveyed the set-up in the blister. He inspected it carefully, as did the others. When he spoke, his voice came through the helmet receivers with a slightly tinny sound: "Anything wrong? Looks O.K. to me."

"O.K. by me, too," said Farrell.

"Working in suit is not the best," said Don. "Barney, you're the bright-eyed lad, can you align the plates?"

"I think so," came the muffled booming of Barney's powerful voice. "Gimme screwdriver!"

Barney fiddled with the plate-controls for several minutes. "She's running on dead center alignment, now," he announced.

"Question," put in Wes, "do we get power immediately, or must we wait whilst the beam gets there and returns?"

"You must run your power line before you get power," said Walt. "My money is on the wait."

"Don't crack your anode-coupling circuit until then," warned Wes. "We don't know a thing about this; I'd prefer to let it in easy-like instead of opening the gate and letting the whole four million tons per second come roaring in through this ammeter."

"Might be a little warm having Sol in here with us," laughed Channing. "This is once in my life when we don't need a milliammeter, but a million-ammeter!"

"Shall we assign a pseudonym for it?" chuckled Walt.

"Let's wait until we see how it works."

The minutes passed slowly, and then Wes announced: "She should be here. Crack your anode-coupler, Barney."

Barney advanced the dial, gingerly. The air that could have grown tense was, of course, not present in the blister. But the term is but a figure of speech, and therefore it may be proper to say that the air grew tense. Fact is, it was the nerves of the men that grew tense. Higher and higher went the dial, and still the meter stayed inert against the zero-end pin.

"Not a wiggle," said Barney in disgust. He twirled the dial all the way around, and snorted. The meter left the zero pin ever so slightly.

Channing turned the switch that increased the sensitivity of the meter until the needle stood halfway up the scale.

"Solar power, here we come," he said in a dry voice. "One half ampere at seven volts! Three and one half watts. Bring on your atom-smashers! Bring on your power-consuming factory-districts. Hang the whole load of Central United States on the wires, for we have three and one half watts! Just enough to run an electric clock!"

"But would it keep time?" asked Barney. "Is the frequency right?"

"Nope--but we'd run it. Look, fellows, when anyone tells you about this, insist that we got thirty-five hundred milliwatts on our first try. It sounds bigger."

"O.K., so we're getting from Sol just about three tenths of the soup we need to make the set-up self-sustaining," said Walt. "Wes, this in-phase anode of yours--what can we do with it?"

"If this thing worked, I was going to suggest that there is enough power out there to spare. We could possibly modulate the in-phase anode with anything we wanted, and there would be enough junk floating around in the photosphere to slam on through."

"Maybe it is that lack of selectivity that licks us now," said Don. "Run the voltage up and down a bit. There should be D.C. running around in Sol, too."

"Whatever this power-level is running at," said Barney, "we may get in-phase voltage--or in-phase power by running a line from the power terminal back. Move over, boys, I'm going to hang a test clip in here."

Barney's gloved hands fumbled a bit, but the clip was attached. He opened the anode-coupler once again, and the meter slammed against the full-scale peg.

"See?" he said triumphantly.

"Yup," said Channing cryptically. "You, Bernard, have doubled our input."

"Mind if I take a whack at aligning it?" asked Wes.

"Go ahead. What we need is a guy with eyes in his fingertips. Have you?"

"No, but I'd like to try."

Farrell worked with the deflection plate alignment, and then said, ruefully: "No dice. Barney had it right on the beam."

"Is she aligned with Sol?" asked Channing.

Walt squinted down the tube. "Couldn't be better," he said, blinking.

"Could it be that we're actually missing Sol?" asked Don. "I mean, could it be that line-of-sight and line-of-power aren't one and the same thing?"

"Could be," acknowledged Wes. Walt stepped to the verniers and swung the big intake tube over a minute arc. The meter jumped once more, and Channing stepped the sensitivity down again. Walt fiddled until the meter read maximum and then he left the tube that way.

"Coming up," said Channing. "We're now four times our original try. We now have enough juice to run an electric train--a toy train! Someone think of something else, please. I've had my idea for the day."

"Let's juggle electrode-spacing," suggested Wes.

"Can do," said Walt, brandishing a huge spanner wrench in one gloved hand.

* * * * *

Four solid, futile hours later, the power output of the solar beam was still standing at a terrifying fourteen watts. Channing was scratching furiously on a pad of paper with a large pencil; Walt was trying voltage-variations on the supply-anodes in a desultory manner; Barney was measuring the electrode spacing with a huge vernier rule, and Wes was staring at the sun, dimmed to seeable brightness by a set of dark glasses.

Wes was muttering to himself. "Electrode-voltages, O.K. ... alignment perfect ... solar power output ... not like power-line electricity ...

solar composition ... Russell's Mixture--"

"Whoooo said that!" roared Channing.

"Who said what?" asked Barney.

"Why bust our eardrums?" objected Walt.

"What do you mean?" asked Wes, coming to life for the moment.

"Something about Russell's Mixture. Who said that?"

"I did. Why?"

"Look, Wes, what are your cathodes made of?"

"Thorium, C. P. metal. That's why they are shipped in metal containers in a vacuum."

"What happens if you try to use something else?"

"Don't work very well. In fact, if the output cathode and the input dynode are not the same metal, they won't pass power at all."

"You're on the trail right now!" shouted Channing. "Russell's Mixture?"

"Sounds like a brand of smoking tobacco to me. Mind making a noise like an encyclopedia and telling me what is Russell's Mixture?"

"Russell's Mixture is a conglomeration of elements which go into the making of Sol--and all the other stars," explained Don. "Hydrogen, Oxygen, Sodium, and Magnesium, Iron, Silicon, Potassium, and Calcium. They, when mixed according to the formula for Russell's Mixture, which can be found in any book on the composition of stars, become the most probable mixture of metals. They--Russell's Mixture--go into the composition of all stars, what isn't mentioned in the mix isn't important."

"And what has this Russell got that we haven't got?" asked Walt.

"H, O, Na, Mg, Fe, Si, K, and Ca. And we, dear people, have Th, which Russell has not. Walt, call the metallurgical lab and have 'em whip up a batch."

"Cook to a fine edge and serve with a spray of parsley? Or do we cut it into cubes--"

"Go ahead," said Channing. "Be funny. You just heard the man say that dissimilar dynode-cathodes do not work. What we need for our solar beam is a dynode of Russell's Mixture so that it will be similar to our cathode--which in this case is Sol. Follow me?"

"Yeah," said Walt. "I follow, but brother I'm a long way behind. But I'll catch up," he promised as he made connection between his suit-radio and the Station communicator system. "Riley," he said, "Here we go again. Can you whip us up a batch of Russell's Mixture?"

Riley's laugh was audible to the others, since it was broadcast by Walt's set. "Yeah, man, we can--if it's got metal in it? What, pray tell, is Russell's Mixture?"

Walt explained the relation between Russell's Mixture and the composition of Sol.

"Sun makers, hey?" asked Riley. "Is the chief screwball there?"

"Yup," said Walt, grinning at Don.

"Sounds like him. Yeah, we can make you an alloy consisting of Russell's Mixture. Tony's got it here, now, and it doesn't look hard. How big a dynode do you want?"

Walt gave him the dimensions of the dynode in the solar tube.

"Cinch," said Riley. "You can have it in two hours."

"Swell."

"But it'll be hotter than hell. Better make that six or seven hours. We may run into trouble making it jell."

"I'll have Arden slip you some pectin," said Walt. "Tomorrow morning then?"

"Better. That's a promise."

Walt turned to the rest. "If any of us can sleep," he said, "I'd suggest it. Something tells me that tomorrow is going to be one of

those days that mother told me about. I'll buy a drink."

* * * * *

Walt opened the anode-coupler circuit, and the needle of the output ammeter slammed across the scale and wound the needle halfway around the stop pin. The shunt, which was an external, high-dissipation job, turned red, burned the paint off of its radiator fins, and then proceeded to melt. It sputtered in flying droplets of molten metal. Smoke spewed from the case of the ammeter, dissipating in the vacuum of the blister.

Walt closed the coupler circuit.

"Whammo!" he said. "Mind blowing a hundred-amp meter?"

"No," grinned Don. "T have a thousand amp job that I'll sacrifice in the same happy-hearted fashion. Get an idea of the power?"

"Voltmeter was hanging up around ten thousand volts just before the amp-meter went bye-bye."

"Um-m-m. Ten thousand volts at a hundred amps. That is one million watts, my friends, and no small potatoes. To run the Station's communicating equipment we need seven times that much. Can we do it?"

"We can. I'll have Jim Warren start running the main power bus down here and we'll try it. Meanwhile, we've got a healthy cable from the generator room; we can run the noncommunicating drain of the Station from our plaything here. That should give us an idea. We can use a couple of million watts right there. If this gadget will handle it, we can make one that will take the whole load without groaning. I'm calling Jim right now. He can start taking the load over from the generators as we increase our intake. We'll fade, but not without a flicker."

Walt hooked the output terminals of the tube to the huge cable blocks, using sections of the same heavy cable.

Jim Warren called: "Are you ready?"

"Fade her in," said Walt. He kept one eye on the line voltmeter and opened the anode-coupler slightly. The meter dipped as Warren shunted the Station load over to the tube circuit. Walt brought the line

voltage up to above normal, and it immediately dropped as Warren took more load from the solar intake. This jockeying went on for several minutes until Warren called: "You've got it all. Now what?"

"Start running the bus down here to take the communications load," said Don. "We're running off of an eight hundred thousand mile cathode now, and his power output is terrific. Or better, Jim, run us a high-tension line down here and we'll save silver. We can ram ten thousand volts up there for transformation. Get me?"

"What frequency?"

"Yeah," drawled Channing, "have Charley Thomas run us a control line from the primary frequency standard. We'll control our frequency with that. O.K.?"

"Right-o."

Channing looked at the set-up once more. It was singularly unprepossessing, this conglomeration of iron and steel and plastic. There was absolutely nothing to indicate the two and one third million watts of power that coursed from Sol, through its maze of anodes, and into the electric lines of Venus Equilateral. The cathodes and dynode glowed with their usual dull red glow, but there was no coruscating aura of power around the elements of the system. The gymbals that held the big tube slid easily, permitting the tube to rotate freely as the selsyn motor kept the tube pointing at Sol. The supply cables remained cool and operative, and to all appearances, the set-up was inert.

"O.K., fellows," said Channing. "This is it--"

He was interrupted by the frantic waving of Kingman, from the other side of the air lock.

"I feel slightly conscience-stricken," he said with a smile that showed that he didn't mean it at all. "But let us go and prepare the goat for shearing."

* * * * *

Kingman's trouble was terrific, according to him. "Mr. Channing," he complained, "you are not following our wishes. And you, Mr. Farrell, have been decidedly amiss in your hobnobbing with the engineers here. You were sent out as my consultant, not to assist them in their

endeavors."

"What's your grief?" asked Channing.

"I find that your laboratory has been changing the circuits without having previously informed me of the proposed change," complained Kingman. "I feel that I am within my rights in removing the tubes brought here. Your investigations have not been sanctioned--" he looked out through the air lock. "What are you doing out there?"

"We have just succeeded in taking power from the sun," said Don. He tried to keep his voice even, but the exultation was too high in him, and his voice sounded like sheer joy.

"You have been--" Kingman did a double-take. "You _what_?" he yelled.

"Have succeeded in tapping Sol for power."

"Why, that's wonderful."

"Thank you," said Don. "You will no doubt be glad to hear that Wes Farrell was instrumental in this program."

"Then a certain part of the idea is rightfully the property of Terran Electric," said Kingman.

"I am afraid not," said Don. "Dr. Farrell's assistance was not requested. Though his contribution was of great value, it was given freely. He was not solicited. Therefore, since Terran Electric was not consulted formally, Dr. Farrell's contribution to our solar power beam can not be considered as offering a hold on our discovery."

"This is true, Dr. Farrell?"

"I'm afraid so. You see, I saw what was going on and became interested, academically. I naturally offered a few minor suggestions, in somewhat the same manner as a motorist will stop and offer another motorist assistance in changing a tire. The problem was interesting to me and as a problem, it did not seem to me--"

"Your actions in discussing this with members of the Venus Equilateral technical staff without authorization will have cost us plenty," snapped Kingman. "However, we shall deal with you later."

"You know," said Farrell with a cheerfully malicious grin, "if you had been less stuffy about our tubes, they might be less stuffy about my contribution."

"Ah, these nonlegal agreements are never satisfactory. But that is to be discussed later. What do you intend to do with your invention, Dr. Channing?"

Channing smiled in a superior manner. "As you see, the device is small. Yet it handles a couple of million watts. An even smaller unit might be made that would suffice to supply a home, or even a community. As for the other end, I see no reason why the size might not be increased to a point where it may obsolete all existing power-generating stations."

Kingman's complexion turned slightly green. He swallowed hard. "You, of course, would not attempt to put this on the market yourself."

"No?" asked Channing. "I think you'll find that Interplanetary Communications is as large, if not larger, than Terran Electric, and we have an enviable reputation for delivering the goods. We could sell refrigerators to the Titan Colony if we had the V-E label on them and claimed they were indispensable. Our escutcheon is not without its adherents."

"I see," said Kingman. His present volubility would not have talked a jury into freeing the armless wonder from a pickpocketing charge. "Is your invention patentable?"

"I think so. While certain phases of it are like the driver tube, which, of course, is public domain, the applications are quite patentable. I must admit that certain parts are of the power transmission tube, but not enough for you to claim a hold, I know. At any rate, I shall be busy for the next hour, transmitting the details to Washington, so that the Interplanetary Patent Office may rule on it. Our Terran legal department has a direct line there, you know, and they have been directed to maintain that contact at all cost."

"May I use your lines?"

"Certainly. They are public carriers. You will not be restricted any more than any other man. I am certain that our right to transmit company business without waiting for the usual turn will not be contested."

"That sounds like a veiled threat."

"That, sounds like slander!"

"Oh no. Believe me. But wait, Dr. Channing. Is there no way in which we may meet on a common ground?"

"I think so. We want free hand in this tube proposition."

"For which rights you will turn over a nominal interest in solar power?"

"Forty percent."

"But we--"

"I know, you want control."

"We'd like it."

"Sorry. Those are our terms. Take 'em or leave 'em."

"Supposing that we offer you full and unrestricted rights to any or all developments you or we make on the Martian transmission tubes?"

"That might be better to our liking."

"We might buck you," said Kingman, but there was doubt in his voice.

"Yes? You know, Kingman, I'm not too sure that Venus Equilateral wants to play around with power except as a maintenance angle. What if we toss the solar beam to the public domain? That is within our right, too."

Kingman's green color returned, this time accompanied with beads of sweat. He turned to Farrell. "Is there nothing we can do? Is this patentable?"

"No--Yes," grinned Farrell.

Kingman excused himself. He went to the office provided for him and began to send messages to the Terran Electric offices at Chicago. The forty minute wait between message and answer was torture to him, but it was explained to him that light and radio crossed space at one

hundred and eighty-six thousand miles per second and that even an Act of Congress could do nothing to hurry it. Meanwhile, Channing's description tied up the Terran Beam for almost an hour at the standard rate of twelve hundred words per minute. Their answers came within a few minutes of one another.

Channing tossed the 'gram before Kingman. "Idea definitely patentable," said the wire.

Kingman stood up. Apparently the lawyer believed that his pronouncement would carry more weight by looming over the smiling, easy-going faces of his parties-of-the-second-part. "I am prepared to negotiate with your legal department; offering them, and you, the full rights to the use of the transmission tube. This will include full access to any and all discoveries, improvements, and/or changes made at any time from its discovery to the termination of this contract, which shall be terminated only by absolute mutual agreement between Terran Electric and Interplanetary Communications.

"In return for this, Interplanetary Communications will permit Terran Electric to exploit the solar beam tube fully and freely, and exclusively--"

"Make that slightly different," said Channing. "Terran Electric's rights shall prevail exclusively--_except_ within the realm of space, upon man-made celestial objects, and upon the satellites and minor natural celestial bodies where stations of the Interplanetary Communications Company are established."

Kingman thought that one over. "In other words, if the transport companies desire to use the solar beam, you will hold domain from the time they leave an atmosphere until they again touch--"

"Let's not complicate things," smiled Don cheerfully. "I like uncomplicated things."

Kingman smiled wryly. "I'm sure," he agreed with fine sarcasm. "But I see your point. You intend to power the communications system with the solar beam. That is natural. Also, you feel that a certain amount of revenue should be coming your way. Yes, I believe that our legal departments can agree."

"So let's not make the transport companies change masters in mid-space," smiled Don.

"You are taking a lot on your shoulders," said Kingman. "We wouldn't permit our technicians to dictate the terms of an agreement."

"You are not going to like Venus Equilateral at all," laughed Don. "We wouldn't permit our legal department to dabble in things of which they know nothing. Years ago, when the first concentric beam was invented, which we now use to punch a hole in the Heaviside Layer, Communications was built about a group of engineers. We held the three inner planets together by the seat of our pants, so to speak, and nurtured communications from a slipshod, hope-to-God-it-gets through proposition to a sure thing. Funny, but when people were taking their messages catch as catch can, there was no reason for legal lights. Now that we can and do insure messages against their loss, we find that we are often tangled up with legal red tape.

"Otherwise, we wouldn't have a lawyer on the premises. They serve their purpose, no doubt, but in this gang, the engineers tell the attorneys how to run things. We shall continue to do so. Therefore you are speaking with the proper parties, and once the contract is prepared by you, we shall have an attorney run through the whereases, wherefores, and parties of the first, second, and third parts to see that there is no sleight of hand in the microscopic type."

"You're taking a chance," warned Kingman. "All men are not as fundamentally honest as Terran Electric."

"Kingman," smiled Channing, "I hate to remind you of this, but who got what just now? We wanted the transmission tube."

"I see your point. But we have a means of getting power out of the sun."

"We have a hunk of that too. It would probably have been a mere matter of time before some bright bird at Terran found the thing as it was."

"I shall see that the contract gives you domain over man-made objects in space--including those that occasionally touch upon the natural celestial objects. Also the necessary equipment operating under the charter of Interplanetary Communications, wherever or whenever it may be, including any future installations."

"Fine."

"You may have trouble understanding our feelings. We are essentially a

space-born company, and as such we can have no one at the helm that is not equipped to handle the technical details of operation in space." Channing smiled reminiscently. "We had a so-called efficiency expert running Venus Equilateral a couple of years ago, and the fool nearly wrecked us because he didn't know that the airplant was not a mass of highly complicated, chemical reaction machinery instead of what it really is. Kingman, do you know what an airplant is?"

"Frankly no. I should imagine it is some sort of air-purifying device."

"You'll sit down hard when I tell you that the airplant is just what it is. Martian Sawgrass! What better device in the solar system can be used for air-purifying than a chlorophyll-bearing plant; it takes in carbon dioxide and gives off oxygen. Brother Burbank tossed it in the incinerator because he thought it was just weeds, cluttering up the place. He was allergic to good engineering, anyway."

"That may be good enough in space," said Kingman, "but on Terra, we feel that our engineers are not equipped to dabble in the legal tangles that follow when they force us to establish precedent by inventing something that has never been covered by a previous decision."

"O.K.," said Don. "Every man to his own scope. Write up your contract, Kingman, and we'll all climb on the bandwagon with our illiterary X's."

* * * * *

In Evanston, North of Chicago, the leaves changed from their riotous green to a somber brown, and fell to lay a blanket over the earth. Snow covered the dead leaves, and Christmas, with its holly went into the past, followed closely by New Year's Eve with its hangover.

And on a roof by the shore of Lake Michigan, a group of men stood in overcoats beside a huge machine that towered above the great letters of the Terran Electric Company sign that could be seen all the way from Gary, Indiana.

It was a beautiful thing, this tube; a far cry from the haywire thing that had brought solar power to Venus Equilateral. It was mounted on gymbals, and the metal was bright-plated and perfectly machined. Purring motors caused the tube to rotate to follow the sun.

"Is she aligned?" asked the project engineer.

"Right on the button."

"Good. We can't miss with this one. There may have been something sour with the rest, but this one ran Venus Equilateral--the whole Relay Station--for ten days without interruption."

He faced the anxious men in overcoats. "Here we go," he said, and his hand closed upon the switch that transferred the big tube from test power to operating power.

The engineer closed the switch, and stepped over to the great, vaned, air-cooled ammeter shunt. On a panel just beyond the shunt the meter hung--

At Zero!

"Um," said the project engineer. "Something wrong, no doubt."

They checked every connection, every possible item in the circuit.

"Nothing wrong."

"Oh now look," said the project engineer, "This isn't hell, where the equipment is always perfect except that it doesn't work."

"This is hell," announced his assistant. "The thing is perfect except that it doesn't work."

"It worked on Venus Equilateral."

"We've changed nothing, and we handled that gadget like it was made of cello-gel. We're running the same kind of voltage, checked on Standard Voltmeters. We're within one tenth of one percent of the original operating conditions. But--no power."

"Call Channing."

The beams between Terra and Venus Equilateral carried furious messages for several hours. Channing's answer said: "I'm curious. Am bringing the experimental ship to Terra to investigate."

The project engineer asked: "Isn't that the job that they hooked up to use solar power for their drive?"

His assistant said: "That's it. And it worked."

"I know. I took a run on it!"

* * * * *

Channing was taking a chance, running the little _Anopheles_ to Terra, but he knew his ship, and he was no man to be overcautious. He drove it for Terra at three G, and by dead reckoning, started down into Terra's blanket of air, heading for the Terran Electric plant which was situated on the lake shore.

Then down out of the cloudless sky came the _Anopheles_ in a free fall. It screamed with the whistle of tortured air as it fell, and it caught the attention of every man that was working at Terran Electric.

Only those on the roof saw the egg-shaped hull fall out of the sky unchecked; landing fifteen hundred yards off shore in Lake Michigan.

The splash was terrific.

"Channing--!" said the project engineer, aghast.

"No, look, there--a lifeship!"

Cautiously sliding down, a minute lifeship less than the size of a freight car came to a landing in the Terran Electric construction yard. Channing emerged, his face white. He bent down and kissed the steel grille of the construction yard fervently.

Someone ran out and gave Channing a brown bottle. Don nodded, and took a draw of monstrous proportions. He gagged, made a face, and smiled in a very wan manner.

"Thanks," he said shakily. He took another drink, of more gentlemanly size.

"What happened?"

"Dunno. Was coming in at three G. About four hundred miles up, the deceleration just quit. Like that! I made it to the skeeter, here, in just enough time to get her away about two miles ago. _Whoosh!_"

Don dug into his pocket and found cigarettes. He lit up and drew

deeply. "Something cock-eyed, here. That stoppage might make me think that my tube failed; but--"

"You suspect that our tube isn't working for the same reason?" finished the project engineer.

"Yes. I'm thinking of the trick, ultra-high powered, concentric beams we have to use to ram a hole through the Heaviside Layer. We start out with three million watts of sheer radio frequency and end up with just enough to make our receivers worth listening to. Suppose this had some sort of Heaviside Layer?"

"In which case, Terran Electric hasn't got solar power," said the project engineer. "Tim, load this bottle into the _Electric Lady_, and we'll see if we can find this barrier." To Channing, he said: "You look as though you could stand a rest. Check into a hotel in Chicago and we'll call you when we're ready to try it out."

Channing agreed. A shave, a bath, and a good night's sleep did wonders for his nerves, as did a large amount of Scotch. He was at Terran Electric in the morning, once more in command of himself.

Up into the sky went the ship that carried the solar tube. It remained inert until the ship passed above three hundred and forty miles. Then the ammeter needle swung over, and the huge shunt grew warm. The tenuous atmosphere outside of the ship was unchanged, yet the beam drew power of gigantic proportions.

They dropped again. The power ceased.

They spent hours rising and falling, charting this unknown barrier that stopped the unknown radiation from bringing solar power right down to earth. It was there, all right, and impervious. Above, megawatts raced through the giant shunt. Below, not even a micro-ammeter could detect a trace of current.

"O.K., Don," said the project engineer. "We'll have to do some more work on it. It's nothing of your doing."

Mark Kingman's face was green again, but he nodded in agreement. "We seem to have a useless job here, but we'll think of something."

Channing left for Venus Equilateral in two more days. They studied the barrier and established its height as a constant three hundred and

thirty-nine, point seven six miles above Terra's mythical sea level. It was almost a perfect sphere, that did not change with the night and day as did the Heaviside Layer. There was no way to find out how thick it was, but thickness was of no importance, since it effectively stopped the beam.

And as Don Channing stepped aboard the _Princess of the Sky_ to get home again, the project engineer said: "If you don't mind, I think we'll call that one the Channing Layer!"

"Yeah," grinned Don, pleased at the thought, "and forever afterward it will stand as a cinder in the eye of Terran Electric."

"Oh," said the project engineer, "We'll beat the Channing Layer."

The project engineer was a bum prophet--

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With good reason, Professor H. Klauson hesitated; his wife's arms were holding him with a strangely insistent urgency and fear. He tried to disengage himself, but not with much enthusiasm. Although he had not admitted it to anyone but the Presidium's psycho-medic staff, he was afraid, too. Desperately and helplessly afraid.

"Howard, please." Her pale blue eyes were wide, staring into his with that intimacy only someone loved completely and without compromise ever sees. "Don't go back to the Laboratories, Howard. Don't ever go back again."

He smiled, unsuccessfully. He had never been able to hide anything from Lin.

"But, dear, this is ridiculous. We're scientists! We're not frightened

by vague, intangible fears."

Her hands tightened on his shoulders. "We're scientists; so let us admit the obvious. Something doesn't want you to ever complete your research, Howard. We've worked together for ten years, and now you're right on the verge of discovering the secret of life itself. And it means more to humanity than anything else in the history of mankind. But I'm afraid, Howard, and so are you. Whatever is against us stopped you before. Your mind almost broke. It will try again, and this time your mind may not recover."

He managed to push her from him, and immediately he felt lonelier, isolated. His faint laugh sounded foolishly insincere.

"Lin, for the love of science! You sound like a mystic. Any mind is liable to become unintegrated. You talk about invisible, intangible forces. These things can only be in men's minds, dear. No mentality is immune to disorientation."

She sobbed, her head swung back and forth hopelessly. A cloud of lovely hair glinted liquidly in the shifting light from the harmonics glowing from the transparent walls of their apartment. He couldn't leave her in this state.

"Lin, darling, listen to me. I can't abandon my life's work. Particularly something so profoundly important to humanity. One more projection, and my 'closed system' principle will be concluded. After that, think of it, Lin! This is really the one thing mankind has been seeking. All his other activities are only bypaths. With eternal life possible, mankind will have a real reason for struggling onward. Lin--"

"No, Howard," she was saying, brokenly. "There isn't an argument. To me, your mind is more important. Why did your mind black out just before you could finish your last experiment? Why, the whole magnificent psycho-medical staff at the Presidium couldn't find a reason. All the charts show you to be amazingly normal. There is something bigger than our science, Howard. It doesn't intend for you to ever finish your research."

"A woman's intuition?" he said sardonically.

"Not a woman's," she corrected. "Ours. Because you feel it the same as I do."

* * * * *

A sick, vague fear came over him as he stood there nervously, remembering the gleaming, arched height of the biochemistry wards at World Science Presidium. That singularly awful instant just before he could finish his last experiment, when all his mental faculties had crumbled. The microfilm protector had just commenced whirring. Then that final spiraling downward into desperate gray fear and unconsciousness.

There had to be a logical explanation so that whatever blockage stood between him and the conclusion of his research could be torn down. The secret of the single cell had long been his. Whatever that three-dim microphoto film revealed, he and only he could turn the key to open the ultimate secret door into victorious eternity for all mankind.
Now he blinked burning eyes. Lin was, of course, right. He felt it, too. A hidden, omnipresent kind of force that would prevent him from completing his research. But such a thought was adult infantilism, at best. A hidden force! In his world there had to be logical sequence of cause and effect. But even the psycho-medic staff hadn't been able to find one.

"Howard," she was saying, lips quivering. "Remember our Moon House?"

Klauson bristled, froze. "I remember. The World gave us a magnificent marble house on the Moon overlooking Schroeter's Canyon--a return favor for my many gifts to mankind. What a juvenile farce. Imagine me sitting up there on the Moon, with you--two futile little escapists, haunted by our own uselessness, and our fears. No, Lin. I've my particular destiny to fulfill. It isn't hiding away on the Moon. I'll never accept retirement on the Moon, or any place else. Either now, or after my research on the life force. I'd rather die than stop working in science."

He started for the exit panel. Her voice cut deeply, slowed him, turned him.

"You're going to the Laboratories again then," she asked faintly, "in spite of what happened before?"

He nodded, but when he tried to say yes, his throat was dry and sticky.

"Good-by, Howard," she said.

She was crying when he left. It made him feel terribly lost and guilty to leave her crying. But he had to. What made it so bad was that Lin had never cried before; she was so strong, emotionally. Without any real cause, this made him more nervous and irritable. But he was one of the world's greatest scientists. Everything must have a cause, somewhere. Sometime.

His gyrocar dropped down on the spacious roof-landing of the Biochemistry Building at the World Science Presidium. It was beginning to rain--solid, heavy, sharp-driving drops that spattered on the dull, plastic mesh as he walked hurriedly across it to the ingress.

"Hello, Professor Klauson. This is a surprise. I didn't know you would be coming back so soon."

Klauson started violently, clutched at his heart. A sudden, shooting pain was there. Yet the staff had found nothing wrong with his mental or physical integration. They had checked and rechecked.

"Oh--it's you--Larry!" He paused, relieved. "You--you startled me, Larry. I didn't see anyone on the landing."

"I just came over to do a little work on my own," Larry explained.

He was a young, enthusiastic, highly capable student biochemist, with a shock of unruly black hair. He had graduated from World Tech seven years ago, and had been Klauson's assistant for five, working with him faithfully, sometimes during those grueling sixty-four hour stretches. He had been the only one with Klauson when he had lost consciousness.

"Didn't expect you back so soon, Professor," said Larry, talking casually as their elevator dropped them down below the sub-floor level into the spacious, almost vaulted silence of Klauson's private laboratories. "Say, Professor, you intend to try to finish up again tonight?"

Klauson stiffened. He was here, he felt capable enough. It was only a matter of a few hours. Why not? Even as a therapeutic measure.

"I believe I will, Larry. I wasn't intending to, but now that you're here, too, I might as well."

Larry said nothing. He stood in the soft, yet full brilliance of the invisible fluoresce, his black, almost blue hair hanging over his eyes.

He smiled. Klauson started, he had never quite responded this way to Larry's expression before. It seemed--peculiar, rather strange. He discarded that chain of thought and looked about his laboratory.

* * * * *

Nothing had changed. Not that Klauson had expected things to be different. The microphoto film cabinets stood tier upon tier, a long stretch of recorded effort, a complete step-by-step, intricate process of creating life from that awesome moment when he had known the successful preparation of the first simple colloid and had started on his first organic synthesis.

Through the actual combination of the first molecules and the organic colloid and then the first tiny speck of synthesized protoplasm. The frenzied day and night battle against time. Time, that was the predominant factor in nature that did the trick. But he had compressed millions of years into twenty-five. From simple, organic compound through the simple colloid, the protein, the primitive protoplasm, the simplest unicellular organism, the flagellate and--then the great jump into the structure of the gene, the ferreting-out of that intricate, vital combination that gave man life and maintained it. He had conquered--almost.

The high, arched ceiling in the lab with its glowing columns and its streamlined equipment had been provided him by the entire earth--provided him by man's cooperative faith in himself. Men who would find so much greater an impetus to fight ahead if they only knew that whatever other success they might have, their ultimate end was inevitably life, instead of death.

But he would affirm a greater investment of their faith than their wildest dreams had ever granted him. No other man, or combination of men, in the world could synthesize all the knowledge in those cabinets and emerge with the final answer that he alone could evolve. No one but himself. Larry Verrill might possibly develop some capacity to work on the chain. But unlikely. High specialization had made it Klauson's responsibility alone.

Enthusiasm, eagerness was returning; the fear was gone.

"It's so simple, really, now that it's practically over," he said as he unzipped his aerogel cloak, and stepped toward the microphoto film projector. He was talking mostly to himself, a habit of his, only

partly to Verrill.

"Yes," said Larry softly. "I suppose you might call it simple."

"Carrel saw to it that cells with which he experimented had a chance to achieve immortality. Under controlled conditions, the growth proceeds forever, logically. The body, a collection of cells, is a 'closed system.' Like a gyrocar, that's what we called it, didn't we, Larry? No closed system can endure unless it can inspect itself, oil itself, and keep itself in repair. A gyrocar can't do that, but the body can and does, though imperfectly."

Klauson warmed to his subject, and his voice assumed a fresh vigor.

"We've conquered that imperfection! Yet I can hardly believe it myself. People can go on living without that final terrible, unconscious fear of death that must defeat them. One more projection, Larry. One remaining link for correlation. The answer is right here in this projector. An actual three-dimensional record of the very first spark in the heart of the cell itself, the primary bursting of a carbon atom commingling with a single cell, creating life. It's the first and the final record, Larry."

Larry nodded, but his lips were twisted in a rather sad, cynical smile, it seemed to Klauson.

"So simple, isn't it, Professor?"

"Yes, it really is," asserted Klauson, his enthusiasm blinding him to the peculiar reaction of Larry Verrill. "Whatever is revealed in this three-dim projection will contain the final step for the infinite prolongation of human life. When I synthesize it with Compton's H-9 film, we'll have it. Incredible, isn't it?"

"You may not realize just how incredible. How could you?" said Verrill. "Nor I either, for that matter."

Klauson hesitated, his hand frozen above the button that would throw the projector into life. Then, shrugging, his hand started to move down. But it didn't.

For then, unbelievably, terrifyingly, it happened a second time. Professor H. Klauson felt a blackness encompassing the mighty, vaulted laboratory. It closed in tightly, smothering, icy. It wrapped his

entire swirling mind in darkness....

A little round man smiled broadly at him from a stool close to his bed in the psycho-ward.

"Remember me, Professor?" His face beamed with self-possession.

"You're the clinic psychologist who handled the other electroencephal checkup," said Klauson quickly. "Or are you?"

"Good recall," commented the psychologist. "Name's Dunnel. I've rechecked your whole file since your--ah--second disorientation. Weak alphas of course; but that's necessary in your type. No disrhythmia. Tempo's exceptionally well balanced. Look, Professor Klauson, there is still no logical reason for your being here. But meanwhile, these charts don't fib. But I'm not so smug as to think we know so much about the old cortex. Still, logically, we can't find a reason."

"But there must be a--"

"Oh, we'll find out, Professor. How do you feel now? The harmonics working all right?"

"Not quite. Dunnel, both times I have been, well, terribly afraid _before the attacks_. Some kind of intuition. My wife noticed it, too."

"You're beginning to build delusions and rationalizations. We must guard against that. You're bound to put undue emphasis on it, make it far more complex and important than it really is, because it happened at such critical moments. You deal in absolutes, Professor. Cause must equal effect."

"But it wasn't coincidence either time," insisted Klauson. "Not logically. Coincidence is too simple, too handy a gadget, Dunnel. Isn't it?"

"Maybe," said Dunnel, lighting a cigarette. "Anyway, I won't burden you with a lot of hasty probing around. The Staff says you're O.K. to leave the clinic today. Come to my office tomorrow afternoon if you feel like it. If you don't, call me up and tell me why. See you tomorrow."

A little later after the Staff had given him another thorough going-over which revealed nothing amiss, he met his wife who was waiting for him with their gyrocar on the roof-landing.

* * * * *

Only a third of Klauson's normal life was gone, yet he looked twice his age except for rare moments like this. He kissed Lin almost boyishly as they stood together looking over the gleaming plastic structures piercing a clear, blue sky. A soft warm summer wind blew disarmingly over Washington.

Finally Klauson said abruptly: "I'm sorry, Lin. You were right. I'll admit the obvious. Something beyond the scope of our science is blocking my progress. But what is it?"

She shook her head, her eyes brooding with concern for him, deep, dark.

"I've talked with the Science Council," she finally said in a whisper. She turned with resolution to face him. "Howard, they have agreed with me. You need a very long vacation. Our Moon House is gathering Lunar dust, if there is any. I have the Council's support now. We're going to the Moon and we're not going to think about anything that even suggests biochemistry."

"There isn't any such a thing, not on this world," said Klauson.

"Howard. We're going to raise extraterrestrial flowers."

Klauson stared, and was suddenly and violently angry.

"Flowers! You're mad!"

"But the Council's on my side, Howard. They're going to"--she paused, lips trembling--"going to accept your resignation from the Presidium."

A sick hate flooded his stomach, burst in his brain. He was stunned, impotent. He quivered silently. It was their own staff that had said there was nothing wrong with him! Yet, they were demanding that he resign! Rest on that escapist's bromide, Luna. Retreat from reality; rot in meaningless isolation.

"I'll not do it, Lin," he announced harshly. "I refuse to drop a conclusion that might mean the final step in human evolution."

He was dazed, ill, as she led him silently into the gyrocar and piloted it to their apartment. No use arguing with Lin about it. She had that

ageless woman's selfish love to protect her own kind. She and the Council had combined to work against him, instead of helping him solve the cursed enigma.

As soon as they reached home, Klauson contacted the Council President, Gaudet, on the teleaudio. He argued the case, objected fiercely, begged. Gaudet was kind, logical.

"We're all so sorry, Klauson," his huge head said. "But it is quite obvious that you absolutely need a lengthy period of relaxation. Although our own staff can find no logical basis for this decision, we undoubtedly shall, and soon.

"You worked almost steadily for ten years. It is very possible that some highly specialized cellular blockage has developed that even our probers have failed to detect. A few years, raising flowers as Mrs. Klauson has suggested, something completely dissociated from your present work, is probably the answer. Then you can return to your laboratories. Meanwhile, your assistant, Larry Verrill, can continue with your research, perhaps?"

"Verrill is an excellent assistant," Klauson said, controlling himself with difficulty. "But he can never finish my work. I operate, many times, empirically; you know that. My brain alone holds the key to correlate most of the basic links of the chain."

But no amount of discussion could persuade Gaudet. It had all been definitely decided by the Council and Lin. He would retire to the Moon House by Schroeter's Canyon and raise fantastic flowers in the Moon's unique environmental conditions. He would vegetate and rot with the flowers!

"Raising flowers!" Klauson sagged, groaned helplessly, desperately.

The next afternoon in Dunnel's office with its psycho-harmonies shifting benevolently from the opaque walls, Dunnel was saying: "Fear of failure, that's one possibility; unlikely though. Doesn't check with your psycho-charts."

"There is no doubt," Klauson said. "I'm just as certain about this conclusive step as I've been about every one I've taken since I began."

"But you don't know," Dunnel pointed out, "until you've concluded and some illusive censor prevents that. Wait! Here's another possibility:

maybe you're afraid of the consequences of giving humanity the ability to live forever! Think of what it would mean. Think of it consciously! I can't. It's too big. Every basic pattern completely altered. Psychology and the social sciences, particularly, would no longer apply. Humanity would become something unhuman by all present standards of evaluation. It's really an alien concept, Professor. Subconsciously, you're afraid of what it would mean!"

"I see your reasoning there, Dunnel. Frankly, I've never considered that at all. I've been so wrapped up in the thing itself."

"But let's assume that your subconscious has been working on it," insisted Dunnel. "I tell you, Professor; you go back to that laboratory of yours, right now. Get in there with all the fatal paraphernalia and just introspect for a while. Think of the whole, and go beyond the limits of your specialized course. There are so many possible consequences to a sudden transition from mortality to immortality. Think about the things that can, and will, happen. Seems to me, that might well be the motivation for the fear. And, Professor, come back and see me tomorrow."

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Klauson was like the pilots who get rocket psychosis on their first Luna run, and who must immediately make another flight or lose their resistance to space-fear forever. He must go back to the laboratory. Try again.

And Dunnel's diagnosis about Klauson's possible fear of the consequences of giving humanity sudden immortality--he definitely had something there. Klauson wondered why he had never thought of it before. Like Dunnel had said, it would change every present standard of humanity. The enormity of the possible repercussion!

Klauson trembled a little with triumph. Yes, that could be the basis for the fear. A scientist must weigh the consequences of his discoveries. Would the secret of eternal life be a boon, or a catastrophe for man?

Klauson entered a public teleaudio booth and got Verrill's apartment in east Washington. Verrill's eyes seemed to have changed--they looked like those of someone else. Ridiculous. Yes, he did need a rest.

"Verrill," he said tightly, "I'm going back to the laboratory again,

right now. I want you there, too."

Verrill's eyes widened, then narrowed. His mouth slipped into that sad, cynical grin.

"If you insist, Professor. And you always would, of course."

"Why--er--naturally, I will," said Klauson. "Meet me there in fifteen minutes."

The teleaudio faded, but Klauson sat there a moment. He brushed at his face wearily. So strange, the way Verrill had talked--like a stranger almost. But fifteen minutes later the vaulted height of the gleaming laboratory was very silent, and seemed, somehow, cold, as Klauson saw Verrill walking toward him. Verrill seemed to blot out the laboratory, loom extraordinarily large before him.

Klauson had unconsciously been backing away. He felt the hard cold light of the supporting column against the small of his back. He was looking fearfully, into Larry Verrill's eyes.

Into his eyes! Into incredible, swirling blackness. Into space and time and--eternity.

[Illustration: He was looking into incredible swirling blackness--and space and time and eternity.]

And Professor H. Klauson--_knew_.

"Varro," said the thin, wavering body. "It is time for your little transmigration. The Switcher is ready. Don't think too much about what you must do. We are four-dimensional but we are still not very well adapted to the complications of the coordinate stream."

Klauson knew, yet it was far beyond his capacity to understand. He was seeing something that had happened, yet was still to happen. Fourth dimensionally, time, as he knew it, was meaningless. The man who had spoken in this strange world revealed by Verrill's alien brain, was named Grosko. The other figure, Varro, was also Verrill. Klauson knew that, but he understood very little.

Grosko's boneless fingers were manipulating the matrix coordinate console.

"I've never been convinced," muttered Varro. "It is an incomprehensible cycle, even to our fourth-dimensional minds. Where can there ever be any logical end?"

"You have already taken on some of your three-dimensional characteristics--those of Verrill, whose body you will assume control of, and merge your mentality with. Already you are beginning to think in terms of absolutes, in terms of three-dimensional logic. Forget a hypothetical end, which our fourth-dimensional consciousness knows cannot exist. You will encounter no difficulties. You will gradually adjust yourself to their concepts of the absolute; but still you will retain enough of your Varro mentality to carry out your assignment."

"But it seems so unprogressive in the Universal sense," persisted Varro. "Everything seems only a big, futile circle."

"But not for us; that is your three-dimensional absolutism creeping in already though you have not even begun merging with Verrill yet. You are beginning to make premature psychological adjustments. There are countless tangents of probability. And in the particular one that has evolved us, Professor Klauson must be prevented from completing his research. If he does, we will not evolve. But of course we have evolved, so it is inevitable that you will carry out your assignment successfully. Inevitable."

"No free agency, even in the eternal sense," mused Varro. "Everything in all dimensions of space-time is interdependent. We are aware of it, because of our fourth-dimensional minds, but those of Klauson's stage of development are not."

"That is correct," said Grosko. "They realize that everything that has happened is determined by a complex array of circumstantial causes, but they see this only in immediate, comprehensible perspective. The same is true in the Universal also, and in the time-anlim, which their three-dimensional consciousness cannot comprehend.

"Cause and effect, fourth-dimensionally, works also in what they would consider, reversal. What they see as an effect, is also cause. They tie in past, future, present, with cause and effect. Really there is no association. An effect can be in what they consider their past; and a cause can exist in their future. But you will understand after you assume possession of Verrill's consciousness."

"I hope so. It certainly seems terribly involved to me right now."

"That is a natural reaction of Verrill's mind which you are already beginning to associate yourself with. Well, Varro, you are ready for the complete alteration?"

"Naturally," said Varro. "It is on the chronosophic charts, isn't it?"

"Good-by, then," said Grosko. "Don't use the Power unless you find it absolutely necessary, then only mildly of course--"

Varro was enveloped in the radiations of the matrix. His consciousness molecules leaked slowly into the unsuspecting and narrow confines of Larry Verrill's three-dimensional consciousness as he graduated from World Tech in 2081, two years before he was to become the laboratory assistant of Professor H. Klauson.

"You--you're Varro?" Klauson managed in a hoarse whisper.

Larry Verrill nodded. A curtain had dropped over Verrill's eyes behind which those incredible, incomprehensible vistas had opened for a brief interim.

* * * * *

Klauson staggered. There was no basic comprehension. No two-dimensional being could imagine such a thing as _UP_. What he termed past, present, future, to a fourth-dimensional concept would be regarded in the same way as if he, Klauson, were floating a mile in the air regarding the activities of a two-dimensional plane-man. Their only temporal sense would involve simply horizontal movement. And his three-dimensional concepts couldn't ever conceive of those of Varro's. For Varro, there was no past, present, future, as Klauson saw them.

Varro and Grosko and their world was really a future stage of man to Klauson. But Klauson and his world of 2089 was not really the past to Varro. It was only a part of the time-anlim, a term which was meaningless to Klauson. It referred to the oneness of space-time which was clearly envisioned in their fourth-dimensional minds.

"You're not--human," Klauson finally managed to say.

It sounded strange, and somewhat absurd to him after he said it.

"No," agreed Verrill or Varro. "And I might say to you, 'you're not

an ape.' You think of past and future as somehow, separate. I can only tell you that it is all a kind of oneness, which we call the time-anlim. You realize now that my being here is inevitable. It isn't a matter of probability. It was never intended that you should finish this experiment, so that the present stage of humanity might live forever, forever, itself, as a word, being meaningless abstraction."

"But how can someone from the future come back through time to influence the present so that they will--"

Verrill interrupted impatiently.

"That has already been partially explained. Your three-dimensional brain can never understand it fully. Sufficient to say, Professor Klauson, that immortality, by its very nature, is impossible."

Klauson sagged despondently, futilely. He was sitting on a stool looking up. There was no impulse to escape, or to attempt to avoid what was too obviously his end.

"Why?" he asked, listlessly. "Why is immortality impossible?"

"Put it this way, Professor." Klauson winced; the voice sounded so like the harmless, youthful and rather naive Larry Verrill. "Immortality means the cessation of man's association with the process of entropy. Your developing makes another integral part of the entropic process possible. You call it evolution."

He paused, then continued. "You regard us as human. You have other labels, mutants, homo-superiors, or even supermen. But we only develop in this process called by you, evolution. Can't you see the paradox of immortality? It would be feasible if immortality was some part of the evolving process, but it isn't. It might be in some other line of probability, but not this particular one. Look into what you call the past, Professor."

Verrill's eyes were narrow, inscrutable.

"If the ape had suddenly developed immortality, you wouldn't have evolved. Thinking man could never have evolved from an immortal and therefore stagnant race of apes. Just as mortal man came from apes, so homo-superior evolves from mortal man. Paradoxically, there can be no immortality, if the true racial chain is to survive."

Klauson sat stiffly. Well, Dunnel had gotten close to the correct solution though he could never dream of the truth. There had been a deeply buried subconscious fear of the results of immortality. It would have destroyed the--well, what he called 'man's future.' But there was one thing that might be explained.

"Why have you allowed me to advance as far as I have in my research?"

Verrill smiled sadly. "Your whole concept is based on false logic," he said. "But I can't explain. There isn't a question of _allowing_ you. You see, you had to develop this far with your experimentation. Your work involving cosmic ray treatment of genes resulted in certain germ plasm alteration in certain individuals. This will bring about our fourth-dimensional emergence in what you call 'later,' as mutants."

"Then," said Klauson faintly, "I'm also responsible for you."

The young man nodded. "You would term it that. But it's all an integral whole. You deal in cause and effect. But the closest you can get to our logic is to hyphenate it endlessly, cause-effect-cause-effect-cause-effect-cause-effect-cause-effect-cause-effect, without end."

There was a heavy silence. Then Verrill said, not unkindly, "I had better take care of you now, Professor. Your mind will have to bear far too much strain. Your reasoning processes will demand an explanation, which for your three-dim consciousness, is impossible. You will develop a psychosis unless I alter your mind sufficiently."

"What are you going to do?" whispered Klauson, his mouth dry.

"By suggestion, I'll alter your basic behavior and motivation patterns. You will retain most of your present mental characteristics. Amnesia followed by new and fundamentally different lines of activity."

Klauson started to run away, but he found himself sucked into a whirling maelstrom of senseless, unrelated chaos. He reeled dizzily. He felt himself falling....

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He saw his laboratory assistant, Larry Verrill, standing above him, saying with nervous concern, "Professor, you've fainted again. You all right now?"

Klauson felt a queer shocking sensation, an intangible impulse, rather painful.

"No, Larry," he replied. "It's over with me now. I really don't think I could have succeeded in achieving immortality for mankind anyway. There's a flaw in the chain of development, somewhere. And the whole procedure is so complex we could never go over it and find the error. Goodnight, Larry. I'm going home."

He didn't wait for his gyrocar to reach his apartment to tell Lin the startling developments. He contacted her by teleaudio.

"I've changed my mind, Lin dear. I've decided to accept your and the Council's advice. Get together everything we'll want to take to Moon House with us. And, by the way, get all the microfilm you can find on botany and extraterrestrial horticulture. I wonder what has been the matter with me all my life?"

Her face shone with a lovely pink flush of happiness as it faded from the small screen.

Klauson relaxed as the gyrocar sped toward his apartment. His eyes closed, his day-dream was one of glorious technicolor, overflowing with mental reproductions of the magnificent flowers he and Lin would grow in the quiet comfort of the Lunarian valleys.

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